Introduction to Foundations of Mathematics I

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

Course Meeting time and place: Online through D2L at [https://d2l.sfasu.edu](https://d2l.sfasu.edu)

Office hours: MW: 9:30 AM- 10:45 AM and TR: 11:00 AM – 12:15 PM. Additional times are available by appointment. You can choose to either zoom with the instructor for office hours or come in person to the instructor’s office at SFA for office hours. Please email me if you would like to schedule office hours other than the office hours listed above.

Please use the following zoom meeting ID and password for office hours if you choose to zoom for office hours. When you log in, you will be placed in a waiting room and then I will give you access.

Office hours ZOOM: link: [https://sfasu.zoom.us/my/drcarriere?pwd=M3VDZkpRMnRSUUFRWFBmRXgzUzkwdz09](https://sfasu.zoom.us/my/drcarriere?pwd=M3VDZkpRMnRSUUFRWFBmRXgzUzkwdz09)  

or use the Meeting ID: **451 497 5134** and Passcode: **429842**

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.

Text and Materials

The textbook for this course is:


Calculators: Calculators can be used in this course.

Course Requirements: Major course requirements are various homework assignments as determined by your instructor, homework from textbook, three midterm exams and a comprehensive final exam.

- **Final exam** (lasting 2 hours)  
- **Three midterm exams** (each lasting 1 hour 15 minutes) prior to final exam, dates listed below. Exams will be on paper and given by a proctor. (For details, see Exam Policy below)  
- **Ability and resources needed to be able to upload written work to D2L.**  
- **Reliable internet access**  
- **Good computer**  
- **D2L access.** You will be required to access SFA’s Learning management Software at [https://d2l.sfasu.edu](https://d2l.sfasu.edu) daily  
- **Homework** from the textbook will be collected and graded. You will submit written work to the appropriate drop box in D2L for that homework set. Homework due dates are posted in D2L and in the calendar in the syllabus but are subject to change so check the D2L news feed on the homepage of our class in D2L and check your email frequently.
• **Discussion posts** – For each assigned discussion post in D2L, you will be required to post an original post and also reply to two other classmates’ original posts. Discussion post grades are part of your overall homework average.

• Reading the textbook is essential to the learning process and is expected. You should read each section that is listed in the Tentative Course Timeline in the Getting Started Module. 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, with the professor may be necessary in order to succeed in the course.

**Grading and Exams**

There will be three 75 minute exams during the semester and a 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>FEB. 14 – 15</td>
<td>20%</td>
</tr>
<tr>
<td>Exam I</td>
<td>MAR. 20 – 21</td>
<td>20%</td>
</tr>
<tr>
<td>Exam II</td>
<td>APR. 24 – 25</td>
<td>20%</td>
</tr>
<tr>
<td>Exam III</td>
<td>MAY 8 – 9</td>
<td>20%</td>
</tr>
</tbody>
</table>

Semester numerical scores will be converted into letter grades according to the following method. When I calculate your final course 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 the table below.

<table>
<thead>
<tr>
<th>Range of numerical values</th>
<th>Corresponding Letter</th>
</tr>
</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>

**Exam Policy**

Exams in this course must be proctored. You must either take exams at the SFA campus with a proctor (time and location are given in Tentative course timeline in the Getting Started module) or you must take exams with an approved proctor at another location during the scheduled times for the exam. 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 and the Tentative Course Timeline in the Getting Started module 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 will be no make-up exams.*
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 the instructor 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. If you miss an exam due to illness or a family emergency, you will not be penalized. The missed exam grade will be replaced with the final exam grade. The final exam grade can only replace one other exam grade. The final exam is mandatory. If you have a conflict with the final exam (other than another exam at the same time), you must contact the Chair of the Mathematics and Statistics Department.

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. Remember to be respectful and kind to your classmates as you interact online. Check your D2L email daily.

Making Your Homework Easy to Read and Easy to Grade

- Make sure your handwriting is legible.
- 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.
- Take advantage of office hours.

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.

More information about absences can be found of the Dean of Student’s website: https://www.sfasu.edu/thehub/sos/notification-request

Academic Integrity

The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

A note about cheating: 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.
A few words about academic integrity—Possession of materials that can be used to cheat, whether or not they are used, is considered academic dishonesty. Consequences for academic dishonesty will be determined in accordance with university policy at the time of the violation.

General Policies and Information

- You earn your grade by communicating your understanding of the material through the homework, and tests. Clearly communicating mathematics will be essential in this course.
- I will send e-mails to the entire class during the semester, often through D2L. Make sure you have your personal D2L settings set to forward email notifications. Watch for important class announcements on the D2L newsfeed.

Course contact hours and Study hours:

MTH 1350 is a 3 hour credit course. This means that you should spend at least 6 hours per week outside of class studying for this class. Studying should include, but is not limited to completing assignments. Please refer to the excerpt from SFA Policy 5.4 below.

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.

Additional Help: Free tutoring is available from the AARC. They offer the Math Walk-in Table and one-on-one tutoring. For more information, visit the AARC website at www.sfasu.edu/aarc.

Withheld Grades Semester Grades Policy (5.5)
For information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf

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 promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.
Student Wellness and Well-Being

SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

Crisis Resources:
Burke 24-hour crisis line: 1.800.392.8343
National Suicide Crisis Prevention: 9-8-8
Suicide Prevention Lifeline: 1.800.273.TALK (8255)
Crisis Text Line: Text HELLO to 741-741
### Tentative Course Timeline: SPRING 2024

#### Getting Started Module
- All remaining items on Checklist
- Complete Course Structure Quiz with 100% score to move on to Introduction module
- Exam plans
- Introduction Module
  - All remaining items on Checklist
- Discussions Due: Student Intro, House Paint problem

<table>
<thead>
<tr>
<th>Due Sunday, JAN. 28th 11:59 PM</th>
</tr>
</thead>
</table>

#### Numbers and the Base-10 System Module
- Read textbook sections:
  - 1.1. The Counting Numbers (5th or 6th edition)
  - 1.2 Decimals (5th or 6th edition)
  - 1.4 Reasoning about Rounding (5th or 6th edition)
- Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities"):  
  - 1E
  - 1D
  - 1F (#1)
  - 1G
  - 1H
  - 1I (#1,2)
  - 1K
  - 1N (#1,2,3,4)
  - 1Q
  - 1R
- Homework from textbook (turned in via D2L dropbox):
  - Section 1.1 #5,14 pg. 23-24, 6th edition.
  - Section 1.2: #15 pg. 39, 6th edition
  - Section 1.3 #13 pg. 47, 6th edition
  - Section 1.4: #4 pg. 51, 6th edition (#4 for practice only, not to be turned in to be graded)
- All remaining items on Checklist
### Fractions Module, Part 1
- Read textbook sections
  - 2.1 Defining and Reasoning about Fractions (*6th edition*)
- Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities":)
  - 2A
  - 2B
  - 2D
  - 2E
- Homework from textbook (turned in via D2L dropbox):
  - *Section 2.1: #6, 7 p. 65, 6th edition*
- All remaining items on Checklist

### Fractions Module, Part 2
- Read textbook sections
  - 2.2 Reasoning about Equivalent Fractions (*6th edition*)
  - 2.3 Reasoning to Comparing Fractions (*6th edition*)
- Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities"):
  - 2J
  - 2L
  - 2N( #4,7,8)
  - 2M
  - 2O
  - 2Q
  - 2R
  - 2S
- Homework from textbook (turned in via D2L dropbox):
  - *Section 2.2 p. 75 #3, 4 (#4 for practice only, not to be turned in to be graded), 6th edition*
  - *Section 2.2 #17 pg.76, 6th edition*
  - *Section 2.3 #5, 6, 7 pg. 85 (#6 for practice only, not to be turned in to be graded), 6th edition*
- All remaining items on Checklist

### Discussions Due: Unit Fraction problem, Ken problem

---

**EXAM 1**, covers Numbers and Base 10 System Module, and Fraction Modules 1 and 2 (Chapters 1 and 2).
You will be given 75 minutes to complete the exam.
- Must be completed FEB. 14th or FEB. 15th
- On campus opportunity: Thursday, FEB. 15th, 5:30-7:30 pm, Math Building Room 212
- If you choose to take the exam with an approved proctor off campus, you must schedule your exam with the proctor to be taken either FEB. 14th or 15th.
| Due Sunday, | • **Addition and Subtraction Module, Part 1**  
| FEB. 25th | o Read textbook sections  
| 11:59 PM | ▪ 3.1 Interpretations of Addition and Subtraction (6th edition)  
| | o Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities")::  
| | ▪ 3B (state type of addition)  
| | ▪ 3D  
| | ▪ 3E  
| | ▪ 3F  
| | ▪ 3G  
| | o Homework from textbook (turned in via D2L dropbox):  
| | ▪ Section 3.1: pg. 110: #5, 6th edition (give type only, not subtype)*** Also draw a strip diagram for each word problem in #5 and give the situation equation and solution equation for each word problem in #5  
| | ▪ Section 3.2: pg. 122: #3, 6th edition  
| | o All remaining items on Checklist | |  
| Due Sunday, | • **Addition and Subtraction Module, Part 2**  
| MAR. 3rd | o Read textbook sections  
| | ▪ 3.4 Reasoning About Fraction Addition and Subtraction (5th or 6th edition)  
| | o Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities")::  
| | ▪ 3I  
| | ▪ 3J  
| | ▪ 3K  
| | ▪ 3M  
| | ▪ 3N  
| | ▪ 3O  
| | ▪ 3P  
| | ▪ 3Q  
| | ▪ 3R  
| | o Homework from textbook (turned in via D2L dropbox):  
| | ▪ Section 3.3: pg. 130: #2, #3 (6th edition) (revised instructions - SEE news feed on D2L)  
| | ▪ Section 3.4: pg. 141: #10 #12 (#10 and #12 for practice only, not to be turned in to be graded), 6th edition  
<p>| | o All remaining items on Checklist | |<br />
| | • <strong>Discussions Due:</strong> Tomaslav problem, Denise problem |</p>
<table>
<thead>
<tr>
<th>Due Sunday, MAR. 10th 11:59 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiplication Module, Part 1</strong></td>
</tr>
<tr>
<td>o Read textbook sections</td>
</tr>
<tr>
<td>▪ 4.1 Interpretations of Multiplication (6th edition)</td>
</tr>
<tr>
<td>▪ 4.2 Why Multiplying by 10 is Special in Base Ten (6th edition)</td>
</tr>
<tr>
<td>o Class Activities (All class activities are from the 6th edition and can be found in a module called &quot;Class Activities&quot;):</td>
</tr>
<tr>
<td>▪ 4A</td>
</tr>
<tr>
<td>▪ 4B</td>
</tr>
<tr>
<td>▪ 4C</td>
</tr>
<tr>
<td>o Homework from textbook (turned in via D2L dropbox):</td>
</tr>
<tr>
<td>▪ <strong>Section 4.1: p. 161: #7ab</strong> (6th edition)</td>
</tr>
<tr>
<td>o All remaining items on <strong>checklist</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Due Sunday, MAR. 17th 11:59 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiplication Module, Part 2</strong></td>
</tr>
<tr>
<td>o Read textbook sections</td>
</tr>
<tr>
<td>▪ 4.3 The Commutative and Associative Properties of Multiplication, Areas of Rectangles and Volumes of Boxes (5th or 6th edition)</td>
</tr>
<tr>
<td>▪ 4.4 The Distributive Property (5th or 6th edition)</td>
</tr>
<tr>
<td>▪ 4.5 Properties of Arithmetic, Mental Math, and Single-Digit Multiplication Facts (5th or 6th edition)</td>
</tr>
<tr>
<td>o Class Activities (All class activities are from the 6th edition and can be found in a module called &quot;Class Activities&quot;):</td>
</tr>
<tr>
<td>▪ 4D</td>
</tr>
<tr>
<td>▪ 4E</td>
</tr>
<tr>
<td>▪ 4F</td>
</tr>
<tr>
<td>▪ 4G</td>
</tr>
<tr>
<td>▪ 4H</td>
</tr>
<tr>
<td>▪ 4J</td>
</tr>
<tr>
<td>▪ 4K</td>
</tr>
<tr>
<td>▪ 4M</td>
</tr>
<tr>
<td>▪ 4N (#1,2,4)</td>
</tr>
<tr>
<td>▪ 4P (#1,2.6)</td>
</tr>
<tr>
<td>o Homework from textbook (turned in via D2L dropbox):</td>
</tr>
<tr>
<td>▪ <strong>Section 4.3: p. 177 #10</strong> (6th edition)</td>
</tr>
<tr>
<td>▪ <strong>Section 4.4: p. 187 #4, #6(b,c )</strong> (#4 for practice only, not to be turned in to be graded),6th edition</td>
</tr>
<tr>
<td>▪ <strong>Section 4.5: p. 196: #4</strong> (6th edition) (just do equations on #4, no word description)</td>
</tr>
<tr>
<td>o All remaining items on <strong>Checklist</strong></td>
</tr>
</tbody>
</table>

**Discussions Due: Ted problem**

MAR. 20th or 21st

EXAM 2, covers (Chapters 3 and 4, except section 4.6)  
You will be given 75 minutes to complete the exam.

- o Must be completed MAR. 20th or 21st
- o On campus opportunity: Thursday, MAR. 21st, 5:30-7:30 pm, Math Building Room 212
- o If you choose to take the exam with an approved proctor off campus, you must schedule your exam with the proctor to be taken either MAR. 20th or 21st
<table>
<thead>
<tr>
<th>Due Sunday,</th>
<th>Multiplication Module, Part 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAR. 31st</td>
<td>o Read textbook sections</td>
</tr>
<tr>
<td>11:59 PM</td>
<td>▪ 4.6 Why the Standard Algorithm for Multiplying Whole Numbers Works (6th edition)</td>
</tr>
</tbody>
</table>
|            | Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities"):
|            | ▪ 4Q                           |
|            | o Homework from textbook (turned in via D2L dropbox):
|            | ▪ Section 4.6: pg. 205: #10 (parts A, B, and D), #11 (parts A, B, and C) (6th edition) |
|            | o All remaining items on Checklist |
| Due Sunday, | Fraction Multiplication Module |
| APR. 7th   | o Read textbook sections       |
| 11:59 PM   | ▪ 5.1 Making Sense of Fraction Multiplication (6th edition) |
|            | o Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities"):
|            | ▪ 5A                           |
|            | ▪ 5C                           |
|            | ▪ 5D                           |
|            | ▪ 5E                           |
|            | o Homework from textbook (turned in via D2L dropbox):
|            | ▪ Section 5.1: pp. 216, #3 , #5 (#5 for practice only, not to be turned in to be graded), 6th edition |
|            | o All remaining items on Checklist |
| Due Sunday, | Decimal Multiplication Module  |
| APR. 7th   | o Read textbook section        |
| 11:59 PM   | ▪ 5.2 Making Sense of Decimal Multiplication (6th edition) |
|            | o Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities"):
|            | ▪ 5G                           |
|            | ▪ 5H                           |
|            | ▪ 5I                           |
|            | ▪ 5J                           |
|            | o Homework from textbook (turned in via D2L dropbox):
|            | ▪ Section 5.2: pp. 223-224 #3 (6th edition) |
|            | ▪ Section 5.2: pp. 223-224 #10 (#10 for practice only, not to be turned in to be graded), 6th edition |
|            | o All remaining items on Checklist |
### Division Module, Part 1
- Read textbook sections:
  - 6.1 Interpretations of Division (6th edition)
  - 6.2 Division and Fractions and Division with Remainder (6th edition)
  - 6.3 Why Division Algorithms Work (5th or 6th edition)
- Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities"):
  - 6A
  - 6B
  - 6C
  - 6D
  - 6F
  - 6H
  - 6J
  - 6K
- Homework from textbook (turned in via D2L dropbox):
  - Section 6.1 #1 (parts a to f) pg. 246-247, 6th edition
  - Section 6.2 pg. 253-255, #3 (#3 for practice only, not to be turned in to be graded), 6th edition
  - Section 6.3 pp. 266 #2, #3, 6th edition
- All remaining items on Checklist

### Division Module, Part 2
- Read textbook sections:
  - 6.6 Dividing Decimals (6th edition)
- Class Activities (All class activities are from the 6th edition and can be found in a module called "Class Activities"):
  - 6T
  - 6U
  - 6V
- Homework from textbook (turned in via D2L dropbox):
  - Section 6.6 pp. 294 #3 (6th edition)
- All remaining items on Checklist

### EXAM 3, covers (Sections 4.6, 5.1, 5.2, 6.1, 6.2, 6.3 and 6.6)
You will be given 75 minutes to complete the exam.
- Must be completed APR. 24th or 25th
- On campus opportunity: Thursday, APR. 25th, 5:30-7:30 pm, Math Building Room 212
- If you choose to take the exam with an approved proctor off campus, you must schedule your exam with the proctor to be taken either APR. 24th or 25th
**Number Theory Module**

- **Read textbook sections:**
  - 8.1 Factors and Multiples (5th or 6th edition)
  - 8.2 Even and Odd (5th or 6th edition)
  - 8.3 Divisibility Tests (5th or 6th edition)
  - 8.4 Prime Numbers (5th or 6th edition)

- **Class Activities (All class activities are from the 6th edition and can be found in a module called “Class Activities”):**
  - 8A
  - 8B
  - 8D
  - 8E
  - 8H
  - 8J
  - 8K

**Homework from textbook (turned in via D2L dropbox):**

- Section 8.1 p. 358 #4, (#4 for practice only, not to be turned in to be graded), 6th edition
- Section 8.2 pg. 362 #5, (#5 for practice only, not to be turned in to be graded), 6th edition
- Section 8.4 pp. 373 #3 (#3 for practice only, not to be turned in to be graded), 6th edition

- **Number theory quiz (found under "Course Tools" tab, under "Quizzes"):**
  - All remaining items on Checklist

**Final Exam, comprehensive (Chapters 1, 2, 3, 4, 5, 6, and 8)**

You will be given 2 hours to complete the exam.

- Must be completed MAY 8th or 9th
- On campus opportunity: Thursday, MAY 9th, 5:30-8:00 pm, Math Building Room 212
- If you choose to take the exam with an approved proctor off campus, you must schedule your exam with the proctor to be taken either MAY 8th or 9th
**Course description:** Properties of the natural numbers, integers, rational and real number systems, and number theory with an emphasis on problem-solving and critical thinking.

**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

**Credit hours:** 3

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.

**Course Prerequisites and Corequisites:** See general course prerequisites.

**General Education Core Curriculum:** This course has been selected to be part of SFA’s core curriculum. The Texas Higher Education Coordinating Board has identified six objectives for all core courses: 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. Assessment of these objectives at SFA will be based on student work from all core curriculum courses. This student work will be collected in D2L, the assessment management system selected by SFA to collect student work for core assessment.

By enrolling in MTH 1350 – Introduction to Mathematics for Elementary Teachers you are also enrolling in a Core Curriculum Course that fulfills the Mathematics Core Objective requirement.

The chart below indicates: (a) The core objectives that are required to be taught in this course per the Texas Higher Education Coordinating Board (THECB), (b) How the required core objectives will be addressed.

[Examples of the things that can be included in the final column are: Specific assignments, class module(s), chapter(s), strategies, activities, and/or techniques that address the core objectives.]
Core Curriculum Objective Table

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>How the Core Objective Will be Addressed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Inquiry-based activities – Reasoning about Rounding, Fractions, etc.</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>Explanation of concepts along with diagrams on activities</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>Using and explaining algorithms to determine products and quotients.</td>
</tr>
</tbody>
</table>

Course outline:

- Techniques of problem solving and estimation skills [CO 1, 2, 3] 15%
  Explicit instruction in Critical Thinking, Communication and Empirical and Quantitative Reasoning is in addition to implicit instruction, modeling and practice that occur daily in the discussion of numbers and operations. This explicit instruction includes explanation of solving mathematical problems by thinking critically, communicating logically ordered solutions with complete and correct notation, and applying empirical or quantitative skills as appropriate to the problem. The following topics will be threaded throughout the course in order to develop the habits of mind necessary to be successful in mathematics:
  - Introduce Polya’s Problem Solving Process: Understand the Problem, Devise a Plan, Carry Out Plan, Look Back
  - Explore Basic Problem Solving Strategies
  - Explore Patterns in Language, Figures, Numbers, Sequences and Geometry
  - Develop Estimation Skills with Mental Arithmetic
  - Investigate temperature as a form of measurement
- Whole Numbers and Numeration: Concepts and Algorithms [CO 1, 2, 3] 25%
  - Define the Set of Whole Numbers
  - Model Whole Number Operations using a Variety of Methods
  - Verify Properties of Operations: Binary Operation; Closed, Commutative, Associative, Distributive
  - Explore Place Value Systems using Base Five Arithmetic
  - Develop and Apply Algorithms for Whole Number Operations
  - Develop Definition and Properties for Whole Number Exponents
- Number Theory: An Introduction [CO 1, 2, 3] 10%
  - Define and Explore Primes and Composites
  - Explore Basic Divisibility Properties of Sums and Products
  - Explore Applications of the Fundamental Theorem of Arithmetic
  - Define the GCD and LCM and Use Algorithms for Finding Each
- Integers: Concepts and Algorithms [CO 1, 2, 3] 25%
  - Model Integer Operations Using a Variety of Methods

sfasu.edu/math
Math 1350 – Introduction to Foundations of Mathematics I
Syllabus Continuation

- Investigate Extensions of Whole Number Operations and their Properties: Closed, Commutative, Associative, Distributive Property of Multiplication over Addition, Identities, Additive Inverse, Multiplication by Zero
- Real Numbers: Concepts and Algorithms [CO 1, 2, 3] 25%
  - Investigate Practical Uses for Fractions
  - Explore Connections between Fractions, Rational Numbers, Decimals, and Percents
  - Investigate Order of Numbers in Decimal Form
  - Illustrate the Pythagorean Theorem
  - Develop Proportional Thinking to Include Ratio and Proportion, Properties of Proportions, Fundamental Law of Fractions
- Explicit instruction in Critical Thinking, Communication and Empirical and Quantitative Reasoning is in addition to implicit instruction, modeling and practice that occur daily in the discussion of numbers and operations. This explicit instruction includes explanation of solving mathematical problems by thinking critically, communicating logically ordered solutions with complete and correct notation, and applying empirical or quantitative skills as appropriate to the problem.

Student Learning Outcomes (SLO): At the end of MTH 127, a student who has studied and learned the material should be able to:
1. Solve a variety of problems using multiple problem-solving techniques. [CO 1,3]
2. Demonstrate understanding of core concepts underlying standard and non-standard algorithmic procedures for performing operations on subsets of real numbers. [CO 1,3]
3. Communicate his/her knowledge effectively in multiple formats – verbally, concretely, and in writing. [CO 2]
4. Define, identify, and use the fundamental properties of real number operations. [CO 3]
5. Provide logical justification of mathematical thinking. [CO 1]
6. Use mathematical language and notation appropriately to communicate ideas. [CO 2]

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.

Academic Integrity
The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.
Withheld 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. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

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.

Student Wellness and Well-Being
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

Crisis Resources:
- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
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.

Date of document: 08/23/2023