Course Description: Structure of Mathematics I (3-0). Credit 3. Informal logic, sets, relations, functions, whole numbers, numeration systems, binary operations, integers, elementary number theory, modular systems, rational numbers and the system of real numbers. Designed primarily for elementary teacher certification. Others must have consent of instructor. Prerequisites: Must have completed University Core Curriculum mathematics requirements with a grade of C of better.

Learning Outcomes: The purpose of taking the MATH 36X series of courses (MATH 365, 366, and 367) is for preservice elementary and middle school teachers to:

- Acquire knowledge of the mathematical topics beyond elementary school mathematics that can aid in developing deeper knowledge of elementary school mathematics;
- Gain experience in using this deeper understanding of the content to answer EC-8 (Early Childhood through Grade 8) students’ math questions (at both a conceptual and procedural level), interpret EC-8 students’ possible confusion about the math, and trouble-shoot EC-8 students’ possible mistakes;
- Develop the disposition and ability to look at a problem from different points of view;
- See connections between different topics and branches of mathematics; and
- Acquire knowledge of where to find potential material for enrichment for more advanced elementary students.

Goals: The overall goal of MATH 365 is to provide preservice elementary and middle-school teachers with the mathematical knowledge necessary to provide effective classroom instruction related to numbers and operations. Math 365 is a mathematics content course for students working towards a teaching certificate that allows them to teach mathematics from Early Childhood through Grade 8. It IS NOT a methods course in which the main focus is on how to TEACH mathematics. It IS a course in which you will be asked to DO AND LEARN mathematics by engaging in logical mathematical thinking about numerical concepts so that you will have a strong content-knowledge base from which you can draw to make appropriate instructional decisions and generate appropriate mathematical questions as a mathematics teacher in elementary or middle school.

Students who participate in this course should improve their ability to:

- Appropriately represent in multiple ways the content related to numbers and operations that they are expected to teach;
- Develop and explain (verbally, pictorially, and in writing) their own mathematical thinking about numbers and operations;
- Use logical reasoning in the context of numbers and operations, including making conjectures and justifying them or providing counterexamples to disprove them; and
- Analyze and evaluate the mathematical reasoning of others.

The development of these broad outcomes will be supported by the accomplishment of more specific outcomes that will be articulated during the course.

During the semester, you will be expected to do assessment problems from the text to promote class discussion and your understanding of the concepts. There will be several in-class activities (possibly including technology) that lead to discussions of concepts and language that you will see again on the exams. It is impossible to replicate these experiences outside of the classroom environment; therefore class attendance and participation are extremely important. Attendance is required.

In addition, you are encouraged to schedule some time to work with other classmates outside of class. The majority of the content of this course focuses on the vocabulary and language of mathematical reasoning. The best way to learn vocabulary and language is to use it! In previous semesters, students in this course have found it very helpful to form small study groups, or at least to have a study partner, with which to discuss the ideas and homework problems. Office hours are also available for extra discussion and questions.
Instructor: Sherry Scarborough, Ph.D.

Office: 209 Blocker

Email Address: sherry.scarborough@math.tamu.edu

Emails: In all correspondence, please include your name, your course number, and your section number in the subject line. Please regularly check your TAMU email daily.

Web Site: http://www.math.tamu.edu/~Sherry.Scarborough/

Prof. Sherry’s Office Hours: Mondays 2:30 – 4:30pm, Wednesdays 2:30 – 4:30pm

Textbook:

Supplies: For all class days, you will need to bring your class notes (found in Howdy → eCampus → Math 365), your TAMU student ID, and a #2 pencil.

Resources: Texas Essential Knowledge and Skills for Mathematics(revised)
Available at: http://ritter.tea.state.tx.us/rules/tac/chapter111/index.html

Class Times:
Math 365-505 MWF 12:40 – 1:30pm Blocker 149

Tentative Exam Schedule: You must bring your TAMU Student ID to all exams.

- Exam I (Chapters 1 – 3): Wednesday, September 30
- Exam II (Chapters 4 – 5): Wednesday, October 21
- Exam III (Chapters 6 – 7): Wednesday, November 18

Comprehensive (Chapters 1 – 8) Final Exam Schedule: Monday December 14 at 10:30am – 12:30pm in Blocker 149

TAMU Student ID: You must bring your TAMU student ID to all exams, including the final.

Grading: You will be expected to show all of your work on all problems for full credit, unless it is stated otherwise. Three in-class exams (20% each) are 60% of your grade, your quizzes 15%, and your comprehensive final 25%. Due to confidentiality, grades will not be discussed via phone or email, only in person. At the end of the semester you will receive the grade you earned. Grade cutoffs are: A: 90 – 100%, B: 80 – 89%, C: 70 – 79%, D: 60 – 69%, F: 0 – 59%

Grade Disputes: Once you leave class with any graded paper you accept its grade, unless there is a totaling error. All grade disputes must be dealt with at the time you receive them. If the grade was not totaled correctly, you have one week from when the paper was first returned to the class to have the correction made.

Quizzes: Quizzes may be given in lecture and may or may not be announced ahead of time. Quizzes may be in class or out of class. There will be no makeup quizzes, since at the end of the semester when final grades are calculated your 2 lowest quiz grades are dropped.

- Your first individual quiz “Quiz 0 Scavenger Hunt” is found at http://www.math.tamu.edu/~scarboro/365fall2015quiz0.pdf. Print out the quiz and follow its directions; it is due in class on Friday September 11th.
• **Note Card Assignment Quiz**: Your “getting-to-know-you” note card assignment is due Wednesday September 9th. You need to have a picture of yourself that is about 2 inches by 3 inches that you will attach to a colored 4-inch by 6-inch index card, which I will provide.

<table>
<thead>
<tr>
<th>One side of notecard:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>5pts Colored note card</td>
<td></td>
</tr>
<tr>
<td>10pts Picture of self (stapled or taped to card; NO paperclips)</td>
<td></td>
</tr>
<tr>
<td>10pts Name</td>
<td></td>
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<tr>
<td>10pts Math 365-505</td>
<td></td>
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<tr>
<td>10pts Fall 2015</td>
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<tr>
<td>5pts Phone</td>
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<td>10pts Email</td>
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<tr>
<td>10pts Teaching or career plans</td>
<td></td>
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<tr>
<td>10pts Hobbies/Interests</td>
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<tr>
<td>10pts Something interesting or unusual; or something you would like me to know</td>
<td></td>
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<table>
<thead>
<tr>
<th>Other side of notecard:</th>
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<tbody>
<tr>
<td>10pts names, phones, and emails of 4 other classmates from your Math 365 class. Please also record your classmates’ names, emails and phone numbers on the first page of your class notes so you will have this information readily available!</td>
<td></td>
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**Homework Problems**: Homework (assessments, connections, and reviews) problems can be found at the end of each text section. I **STRONGLY** recommend you keep a spiral notebook in which you work these problems over the appropriate material before the next class. Working these problems is essential to your learning and will help you to be fully prepared for your quizzes and exams.

**Calculator Policy**: Calculators are NOT allowed.

**Cell Phone Policy**: No texting, no ringing or vibrating phones, and no electronic devices during class or office hours.

**Scheduled Make-Up Exams**: If you have a University approved absence for missing an exam, you will be expected to make up your exam in the designated room according to the schedule found on [http://www.math.tamu.edu/courses/makeupexams.html](http://www.math.tamu.edu/courses/makeupexams.html), starting with the earliest possible option for each exam, after being given approval by me. **Please email me no later than next morning following the missed exam date so I can set up your makeup exam.** Your TAMU student ID is required for admittance to the makeup exam and you must show up within the first 15 minutes to be given an exam. Only if you have a University approved absence for the day of the exam AND the makeup day will you be allowed to use a later makeup option.

**Make-Up Policy**: No make-up examinations or assignments will be given without a university approved excused absence (See the [Texas A&M University Student Rules](http://www.math.tamu.edu/courses/makeupexams.html)). An absence for a non-acute medical service or regular check-up does not constitute an excused absence. To be excused you must notify me (acknowledged email or written) prior to date of absence if such notification is feasible. Consistent with Texas A&M Student Rules, students are required to notify their instructor **NO LATER** than the end of the second school day after missing an examination or assignment. If no such notice is given, the rights to a make-up are forfeited. For injury or illness too severe or contagious to attend class, you must provide confirmation of a visit to a health care professional affirming date and time of visit. The Texas A&M University Explanatory Statement for Absence from Class Form will NOT be accepted. **It is the student's responsibility to contact his/her instructor to schedule a makeup!**

**Policies**: Policies pertaining to absences, scholastic dishonesty and final examinations are identical to TAMU regulations. Students with an official excused absence are permitted to make up work only for the dates of the absence. All other assigned work, even that assigned on the excused date, is due as assigned.

**Late Policy**: No late work will be accepted.
Copyright: All exams, printed handouts, class notes, assignments, and quizzes are protected by U.S. Copyright Laws. No multiple copies can be made without my written permission. No exams, quizzes, or assignments may be shared with anyone outside of this class. Class notes, online material, exams, quizzes, handouts, or subsets thereof may NOT be posted on Facebook, Twitter, Yahoo!Answers, YouTube, blogs, wikis, forums, videos, podcasts, or any other social media.

Plagiarism: As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. Class notes, online material, exams, quizzes, handouts, or subsets thereof may NOT be posted on Facebook, Twitter, Yahoo!Answers, YouTube, blogs, wikis, forums, videos, podcasts, or any other social media.

Academic Integrity Statement: Aggie Honor Code: “An Aggie does not lie, cheat, or steal or tolerate those who do.” You are an Aggie and so am I! Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit http://aggiehonor.tamu.edu/. Students may work together on the recommended text homework problems. Individual quizzes and examinations are to be taken individually. You may not discuss the contents of an exam until they are returned, to do so violates the Aggie Honor Code. The final exam contents are confidential forever since the final exam is property of the mathematics department and will not be returned.

Aggie Honor Code Violations (cheating): All Aggie Honor Code and copyright violations will be reported. Violations include copying someone else’s work, acquiring answers from an unauthorized source, allowing someone to copy your work, continue writing on an exam or quiz after time is called, violating copyright laws, having someone else do your assignments, posting class material on any social media, etc. Common sanctions include getting a zero for the assignment, getting an F for the course, not being allowed to drop the course, getting a star by your grade on your transcript indicating dishonesty, not graduating with honors, getting expelled, dismissed, or suspended from the university, and/or completing an Honor Council Academic Integrity Development Program course, etc. You are authorized to use a pencil, eraser, and your own TAMU student ID; use of anything else is a violation of the Aggie Honor Code. You may fill out your exam cover before the exam starts; you may not look at any of the exam problems before the exam officially starts. It is academic dishonesty to have any electronic devices including cell phones and smart watches, on your person during exams.

Disabilities: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information, visit http://disability.tamu.edu.

Personal Requests: You are always welcome to come to my office hours; you do not need an appointment. I encourage you to come, ask questions, as often as you would like. Students who come to office hours can get personal attention and help. If you smoke, please ‘air out’ some before visiting. As a courtesy to all, please turn your cell phones and pagers off during all classes and office hours. Thanks!

Please Note: While it is critical that you attain the correct answer to a question, you must show correctly, precisely, and accurately its solution (all the steps, labels, explanations, equal signs, models, etc.) in an orderly, clear, concise manner. Where appropriate circle your final answer. You are responsible for your own learning.

Emergencies: On-campus phones: 9-911 Off-campus and cell phones: 911
Classroom Policy: It is important for us to be considerate and to follow procedures to help things proceed smoothly.

- Bring your Math 365 class notes to class. The notes are found in Howdy \(\rightarrow\) eCampus \(\rightarrow\) Math 365. It is expected that you have skimmed the notes ahead of our class time so that we can focus on working the math problems.
- Please be courteous and respectful. During class I will stay focused on teaching you mathematics, so please stay focused on learning the mathematics being taught. This means you should arrive to class on time, you should stay awake throughout class, you should not be reading a newspaper or working with materials from another course, you should refrain from discussion not related to class, and you should not leave class early (unless there is an emergency or you have talked to me before class). If I feel you are being disruptive or disrespectful during class, you may be asked to leave the room.
- Since I appreciate having an active class, I encourage you to ask questions, to ‘pause’ me when I get too excited and go too fast, and to ‘rewind’ me when I need to go over a step or problem again. I really appreciate those who ask questions in class, and volunteer answers (right or wrong!) in class. The only dumb questions are the ones you do not ask. Even if you cannot figure out how to ask the question, just tell me to run it by you again. It is my job to be the translator --- to figure out what you are trying to ask, so the more information you give me, the better I can figure out what to say. One of my guidelines in life is to learn from my mistakes. We can learn a lot from wrong answers, so please blurt out answers. I can say and enhance your learning so much more from offered comments and answers, than I can to silence. I also appreciate when you can help your neighbor by pointing out a needed thought in the notes. However, please be courteous and respectful to your classmates and to me by not randomly chatting during class time so I will not need to use the virtual ‘mute’ button!
- Sometimes when I am asked a question, I must have this really funny face (some have said mad or stern face); something like :-). This expression means you have asked a really good question, I am trying to figure out how best to answer it, or I am trying to figure out the logistics for what is being asked. I am just concentrating. I am not mad, nor do I think you are stupid --- it would upset me greatly for you to think that I thought that! I have learned to tell my students to not misread my expression. I really care about you and work really hard to best answer your questions. :-)
- You are special and so is everyone else. Your grades will be calculated the same as everyone else’s. After you turn in your final exam, there is nothing more you can do for your grade. If you are concerned about losing your scholarship, getting kicked out of school, or not progressing like you want, you need to seek help the whole semester, not just come to me the last week or two of school. I do care about you and about your learning. This is college; it is up to you to seek help. If you are having trouble with math, please come to my office hours and work on the review problems. If you are having personal issues or other problems, please let me know so I can direct you to those who can help or contact http://scs.tamu.edu/.
- You are expected to work the math problems using the techniques shown in class and not brute force, since it is important to learn the techniques.

Help:
- Me! Please actively participate with me and let me know your problems, your questions, and your concerns
- Your classmates! Form study groups and work on the recommended homework problems together
- Bookmark my Math 365 web page so you will know where to find all important information http://www.math.tamu.edu/~sherry.scarborough/365topics.html
- Read my class notes and skim the book before class
- Attend all classes and ask questions
- **Streaming Videos**: Our streaming videos allow you to watch and listen to math problems being solved and can be found on my Math 365 web page.
- Work all your recommended text homework
- Work all of the old exams and old review problems that are posted on my Math 365 web page before looking at the solutions
- Attend my office hours and ask me for help with homework problems or mathematical concepts.
- Keep up with the material in the course
- Get a personal tutor (a list is available outside Blocker 227)
- Contact the Learning Skills Center (845-4427)
- Contact tutoring@aggieculture.tamu.edu
- Contact Services for Students with Disabilities, if needed, at 845-1637
Tentative Schedule:

- **Week 1**: Introduction, Sections 1.1 – 1.3
- **Week 2**: Sections 2.1 – 2.3
- **Week 3**: Sections 3.1 – 3.2
- **Week 4**: Sections 3.3 – 3.5
- **Week 5**: Review, Exam I (Chapters 1 – 3), Section 4.1
- **Week 6**: Sections 4.2 – 4.3
- **Week 7**: Sections 5.1 – 5.2
- **Week 8**: Review, Exam II (Chapters 4 – 5), Section 6.1
- **Week 9**: Sections 6.2 – 6.3
- **Week 10**: Sections 6.4, 7.1
- **Week 11**: Sections 7.2 – 7.4
- **Week 12**: Review, Exam III (Chapters 6 – 7), Section 8.1
- **Week 13**: Sections 8.2 – 8.3
- **Week 14**: Sections 8.4 – 8.5
- **Week 15**: Review for Comprehensive Final Exam