Syllabus

Math 365 Syllabus - Fall 2023

Course Number: Math 365
Course Title: Structure of Math I
Section 501 meets Tuesdays and Thursdays from 8:00 to 9:15 AM in BLOC 133
Section 502 meets Tuesdays and Thursdays from 9:35 to 10:50 AM in BLOC 133
All times listed in this course are Central Standard Time (CST) unless noted otherwise.
Credit Hours: 3

Instructor Details

Instructor: Tamara Carter, Instructional Associate Professor
Office: Blocker 322C
Phone: Math Department: 979-845-7554. There is no phone in my office, so email is the best way to reach me.
E-Mail: **tcarter@tamu.edu (mailto:tcarter@tamu.edu)** (please include your first name, last name, section number or class time, and any information I need to help you or answer your question)
Office Hours: Mondays 2:30 – 3:50 PM in Blocker 322 and online (check Home Page in Canvas for Zoom Link);

Tuesdays 11:00 AM - noon in Blocker 322 and online (check Home Page in Canvas for Zoom Link);

Wednesdays 2:30 - 3:50 PM in Blocker 322 and online (check Home Page in Canvas for Zoom Link);

Thursdays 11:00 AM - noon in Blocker 322 and online (check Home Page in Canvas for Zoom Link);

and by appointment (email **tcarter@tamu.edu (mailto:tcarter@tamu.edu)** to make an appointment).

Regular office hours will not be held on days when classes are not held (such as breaks and reading days).

Course Description

Math 365 Structure of Mathematics I, Credits 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.

Course Prerequisites

Prerequisite: Must have completed University Core Curriculum mathematics requirements with a grade of C of better.

Special Course Designation

None

Course 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 mathematics 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 students' math questions (at both a conceptual and procedural level), interpret EC-8 students' possible confusion about mathematics, 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;
- Acquire knowledge of where to find potential material for enrichment for more advanced elementary students.

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 toward 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.

Textbook and/or Resource Materials

The **TAMU bookstore (https://tamu.bncollege.com/)** is an option for procuring many of these materials.

Textbook

Billstein, R., Boschmans, B., Libeskind, S., & Lott, J. *A Problem Solving Approach to Mathematics for Elementary School Teachers* (Thirteenth Edition). Any format of the textbook is acceptable. You will not need MyMathLab or other electronic resources beyond the text. We plan to use the same text for Math 366 next semester as well.

Assorted supplies

You will be asked to print and cut out some manipulatives. Resealable baggies would be helpful to contain these manipulatives.

Calculator

Calculators are not needed or allowed on exams. You may use a calculator as you reason through material in class or on homework questions, but make sure you know how to work the problems without a calculator by exam time.

Other Technology

Online assessments will be completed electronically using a combination of Canvas and Gradescope. If you receive a message that you do not have access to Canvas files, check to see if you are logged into your @tamu.edu email account.
Online office hours will use Zoom.

You will need a computer that meets TAMU's Bring Your Own Device policy (**https://it.tamu.edu /services/academics-and-research/teaching-and-learning-tools/computer-requirements (https://it.tamu.edu/services/academics-and-research/teaching-and-learning-tools/computer-requirements/)**) and a high-speed internet connection

You will need to scan and upload written work as a PDF (this can be achieved with a cell phone or other technology – directions will be provided in Canvas).

You will also need appropriate software (PDF reader, Zoom on both your phone and computer, and the latest update on an internet browser - Chrome or Firefox is recommended)

Texas A&M Student ID

Bring your student ID to each class (especially on exam days). If you have a question about your grade, please bring your ID when we talk.

Texas Essential Knowledge and Skills for Mathematics (Revised)

Available here: **https://tea.texas.gov/about-tea/laws-and-rules/texas-administrative-code/19-tac-chapter-111** **(https://tea.texas.gov/about-tea/laws-and-rules/texas-administrative-code/19-tac-chapter-111)**

TExES Exam Preparation Goals

Available here: **https://www.tx.nesinc.com/PageView.aspx?f=GEN_Tests.html** **(https://www.tx.nesinc.com/PageView.aspx?f=GEN_Tests.html)**

Grading Policy

The course grading will be based on the information below. At the end of the semester, you will receive the grade you *earned*, according to the scale given. Due to FERPA privacy issues, I cannot discuss grades over email or phone. If you have a question about your grade, please schedule an individual meeting (in person or on Zoom) with me and bring your TAMU ID.

Grade Breakdown

- Daily Grades: 10%
- Formal Explanations: 30%
- Exam 1: 20%
- Exam 2: 20%
- Final Exam: 20%

Letter Grade assignment

- A: [90,100]
- B: [80,90)
- C: [70,80)
- D: [60,70)
- F: [0,60)

Daily Grades

Daily Grade assignments are designed to help you practice the information from the course. You learn my by doing math, so I suggest that you do every daily grade assignment to the best of your ability. However, we will have over 50 possible daily grades this semester and I will only use the best 25 grades when I average grades for this category. That gives you the opportunity to choose

to take a 0 on quite a few assignments (hopefully completing them later for your own benefit) and still earn a perfect grade in this category. My hope is that this provides you the flexibility to choose what works best for you.

You will have a daily grade (DGC) in Canvas between most class sessions. Daily grades will typically be assigned one class and due at **6 AM on the date of the next class** (for most students, that means that the assignments should be submitted before the student goes to bed the night before class).

You will also have a daily grade (DGEPP) opportunity for completing designated problems from the book for each section that we discuss.

For Daily Grades, you may use your book, notes, calculators, internet sources, and **even help from other people** as long as you can explain the answers that you submit. This is an opportunity for you to interact with the material with as much support as you need to understand the answers you submit.

Formal Explanations

Explanations (both verbal and written) are vitally important for effective communication of mathematics. Sometimes in your teaching career, you will need to thoroughly explain a topic in writing (to send home to a student who is ill, to send home to explain to parents, or as a replacement for a textbook). You will work in groups and submit three formal explanations for this course. I suggest that you start early and work through multiple drafts of the assignment before submitting it. Note that these assignments are due at 6 AM on MONDAY mornings, so please work far enough in advance to ask questions during office hours prior to the due date. Please attempt to match schedules and working styles with your partners when you pick your group members.

Exams

There will be two proctored midterm exams administered during published class times. Everything discussed in class, experienced within an activity or assignment, or found in the homework, reading assignments, or explanations is eligible content for an exam. **You will be expected to show all of your work, and many items will require expository writing (such as explanations)**. Daily grade assignments, formal explanations, and class notes are wonderful preparation material for the exams. No cellphones or other electronic devices are allowed (other than for proctoring purposes). You will need to have your ID available at each exam.

Final Exam

The final exam will be comprehensive and **is required for all students.** You will need to bring your ID to your final exam. If your final exam grade is higher than your lowest test grade, the grade on your final will also replace your lowest test grade in the final grade calculation.

You can check the time for all your final exams at **https://aggie.tamu.edu/registration-and-records/classes/final-examination-schedules** **(https://aggie.tamu.edu/registration-and-records/classes/final-examination-schedules)**

Attendance and Make-up Policies

Attendance is essential to complete this course successfully. "Attending" class is not just physically being present in the room. To really attend class, you should have your preparation work completed by the beginning of class, present your work to the class or your group when requested, share ideas with classmates, and listen attentively when other people share their ideas. During the semester, you will be expected to do homework and daily assignments that have been assigned to promote class discussion. There will be frequent in-class 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. **Please attend and participate in all classes.**

Excused Absences

University student rules concerning excused and unexcused absences, as well as makeups, can be found at **http://student-rules.tamu.edu/rule07** **(http://student-rules.tamu.edu/rule07)** In particular, make-up exams or assignments will typically not be allowed unless a **University approved reason is given to me in writing**. It is **highly recommended** that you notify me before an absence when possible so appropriate arrangements can be made ahead of time. Otherwise (e.g. accident, or emergency), you must notify me **within two business days** of the last date of the absence, including an explanation of why notice could not be sent earlier, to arrange for makeup work.

Technical Difficulties

If you experience technical difficulties while completing or submitting work, email me immediately.

We all know that technology is not 100% reliable. Please have a backup plan in place so that minor technical issues do not prevent you from completing work on time. For instance, you should copy Zoom and important Canvas links to a file that you can access from your phone and have a plan of where to go if your normal internet provider or computer is having issues.

Make-up Exams

Makeup exams will only be allowed due to excused absences and the makeup must be taken as soon as possible after the missed exam. If you know ahead of time you will be absent during an exam, please notify me in advance.

Missed Classes

- It is YOUR responsibility to learn what you missed from class, obtain any notes and assignments, and complete assignments by the regularly scheduled due date. In other words, **missing class on the day work was assigned is not a reason for an extension**. Please continue to keep up with your daily grades. If your reason for missing class would also prevent you from completing daily grades, please directly communicate that information via email.
- If you miss class, please visit with your classmates to discuss the information you missed and attend office hours (online office hours are available) to discuss the missed information with me. Notes are rarely sufficient to help you catch up from a missed class, so please initiate the discussions too.
- If class is officially cancelled for any reason, you can expect that the assignments due/taken on the missed class day will be due/taken the next time the class meets. Please also check Canvas for additional information.
- No rule can cover every situation. If you encounter extenuating circumstances, please **COMMUNICATE** with me as soon as possible.

Late Work Policy

Late work is typically not accepted unless you have a University approved reason and contact me according to the timeline state in **Student Rule 7 of the University Student Rules (https://student-rules.tamu.edu/rule07/)** .

Course Schedule

Week	Topic	Sections	Major Assignments Due
Week 1: 8/21 - 8/25	Introduction to the course Describing Sets Set Operations Logic	Introduction 2.2 2.3 2.1	
Week 2: 8/28 - 9/1	Logic Numeration Systems	2.1 3.1	
Week 3: 9/4 - 9/8	Numeration Systems Addition of Whole Numbers	3.1 3.2	
Week 4: 9/11 - 9/15	Addition of Whole Numbers Subtraction of Whole Numbers Multiplication of Whole Numbers	3.2 3.3 3.4	

Week	Topic	Section	Notes
Week 5: 9/18 - 9/22	Multiplication of Whole Numbers Division of Whole Numbers Overview of Integers (Exam 2 Material) Set of Rational Numbers (Exam 2 Material)	3.4 3.5 Chr. 5 Intro 6.1	
Week 6: 9/25 - 9/29	Exam 1 Overview of Integers Set of Rational Numbers	Exam 1 Chr. 5 Intro 6.1	Exam 1 In class Tuesday 9/26
Week 7: 10/2 - 10/6	Set of Rational Numbers Terminating Decimals	6.1 7.1	FE1 Due 6 AM Monday 10/2
Week 8: 10/9 - 10/13	Terminating Decimals Addition, Subtraction, and Estimation with Rational Numbers	7.1 6.2	Fall Break 10/9 and 10/10
Week 9: 10/16 - 10/20	Addition, Subtraction, and Estimation with Rational Numbers Operations on Decimals (Addition and Subtractions) Multiplication, Division, and Estimation with Rational Numbers	6.2 7.2 part I 6.3	
Week 10: 10/23 - 10/27	Multiplication, Division, and Estimation with Rational Numbers Operations on Decimals (Multiplication and Division) Repeating Decimals	6.3 7.2 part II 7.3	
Week 11: 10/30 - 11/3	Repeating Decimals Exam 2	7.3 Exam 2	FE2 Due 6 AM Monday 10/30 Exam 2 In class Thursday, 11/2
Week 12: 11/6 - 11/10	Real Numbers Proportional Reasoning Percents	7.5 6.4 7.4	
Week 13: 11/13 - 11/17	Percents Divisibility Prime and Composite Numbers Greatest Common Divisor and Least Common	7.4 4.1 4.2 4.3	

	Multiple		
Week 14: 11/20 - 11/24	Integer Addition and Subtraction Integer Multiplication and Division	5.1 5.2	FE3 Due 6 AM Monday 11/20 Reading Day 11/22 Thanksgiving Break 11/23 and 11/24
Week 15: 11/27 - 12/1	Variables Patterns Functions Equations	8.1 1.2 8.3 8.2	
Week 16: 12/4 - 12/12	Final Exam The complete list of finals can be found at **https://aggie.tamu.edu/registration-and-records /classes/final-examination-schedules (https://aggie.tamu.edu/registration-and-records /classes/final-examination-schedules)**	Final Exam	Final Exam M365-501 Friday, Dec. 8 at 1:00 PM M365-502 Thursday, Dec. 7 at 12:30 PM

Additional Course Information Items

Classroom Environment

Please do your part (attitudes, words, and actions) to make our class a place where everyone can feel comfortable exploring mathematical topics without distractions. Always remember and uphold the Aggie core values: Respect, Excellence, Leadership, Loyalty, Integrity, and Selfless Service.

Office Hour Attendees

I would like office hours to be a casual time when we can gather together in one room (either Zoom or in person) and discuss mathematics. This is like a study hall with some of your classmates and me in the room. This allows you to ask questions when you have them and lets you listen to other people's questions. You can come and go from office hours as your schedule permits. If you have a quick question, you are welcome to join us for online office hours by phone as you walk from one class to another.

I will be holding online office hours at the same time as in-person office hours, so I will treat the Zoom room as a "person" in the room. If you do not see me at the computer when you enter online office hours, that means I am visiting with someone in the physical room and will return to the Zoom room when I finish that conversation. Everyone attending online office hours will be joining one room, so please mute your microphone when you are not speaking so we are not distracted by the background noise. If you need to speak to me individually, let me know so we can move to a breakout room and I can move to a different physical room where the other students cannot hear the conversation.

Learning Resources

Your Professor

Communication is essential. Many issues can be solved with effective communication. Please communicate with me before class, after class, during office hours, and via email.

Your Textbook

Please review your textbook and complete reading assignments PRIOR to our discussion of that section in class. Even if some of the topics are not clear from your reading, this textbook reading provides a framework in your brain for our discussions.

Your Class Notes

Please review your notes after each class and ask questions about anything that is not clear. Your notes will be very valuable as you study for exams as well.

Your Classmates

It is also important to communicate with your classmates. 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 with whom to discuss the ideas and homework problems. This often helps people learn more and be able to build on each other's ideas. Please consider setting a regular time to meet. This is a useful idea to carry into your teaching career as well.

Thoughtful Practice

I strongly recommend that you practice problems from the book. These exam preparation problems (DGEPP), if addressed independently, can provide an "exam-like" experience and provide background for your Formal Explanations. See the Exam Preparation Problem list posted in Canvas. You will notice that many of these problems are not like problems from the class notes. The goal is for you to have an opportunity to grapple with thought-provoking problems at your own pace. I will be happy to answer questions after you have worked with the problems. These deeper

questions (especially the explanation questions) are great preparation for the exams. It is also helpful to do math regularly (a little bit each day is usually better than one concentrated session less frequently), so the Daily Grade Canvas (DGC) assignments are designed to help you think through a few problems between class sessions.

Office Hours

As mentioned above, office hours are a great time and place to work on your homework and communicate with your classmates and professor.

Academic Integrity

You will read more about the Academic Integrity Statement and Policy in the University Policies section. It is VERY important to me that you abide by that policy: "An Aggie does not lie, cheat or steal, or tolerate those who do." If you have any questions about whether something would be considered cheating, ask me before you do it. However, here is some general guidance.

- In this course, I encourage you to discuss daily grade assignments and their solutions with your classmates. Study groups are a great way to learn. However, it is NOT permissible to copy solutions from another source (person, book, internet, artificial intelligence sources, etc.). Make sure that you understand and could rework anything that you submit for a grade.
- It is NOT permissible to communicate about any aspect of any exam until ALL students have completed the exam.
- The penalties for violating this policy could include an F on an assignment, exam, or the entire course.

As stated above, for Daily Grades (both DGC and DGEPP), you may use your book, notes, calculators, internet sources, and even help from other people as long as you can explain the answers that you submit. Therefore, you are violating the honor code if you submit an answer that you got from another source but do not understand.

For exams, you may not use any sources other than your own brain.

Copyright of Materials

All class materials (notes, exams, assignments, videos, etc.) are copyrighted and may not be copied, posted, or reproduced without permission.

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to **Student Rule 7** **(https://student-rules.tamu.edu/rule07/)** in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to **Student Rule 7** **(https://student-rules.tamu.edu/rule07/)** in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" **(Student Rule 7, Section 7.4.1** **(https://student-rules.tamu.edu /rule07/)** **)**.

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" **(Student Rule 7, Section 7.4.2** **(https://student-rules.tamu.edu/rule07/)**).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. **(See Student Rule 24** **(https://student-rules.tamu.edu/rule24/)** **)**.

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (**Section 20.1.2.3, Student Rule 20** **(https://aggiehonor.tamu.edu /Rules-and-Procedures/Rules/Honor-System-Rules)**).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at **aggiehonor.tamu.edu** **(https://aggiehonor.tamu.edu/)** .

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all

students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit **disability.tamu.edu** **(https://disability.tamu.edu/)** *.*

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see **University Rule 08.01.01.M1** **(https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf)**):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with **Counseling and Psychological Services** **(https://caps.tamu.edu/)** *(CAPS).*

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's **Title IX webpage** **(https://titleix.tamu.edu/)** *.*

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus.

Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at **suicidepreventionlifeline.org** ➥ **(https://suicidepreventionlifeline.org/)** .

Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. Currently enrolled students wishing to withhold any or all directory information items may do so by going to **howdy.tamu.edu (https://howdy.tamu.edu/)** and clicking on the "Directory Hold Information" link in the Student Records channel on the MyRecord tab. The complete **FERPA Notice to Students (http://registrar.tamu.edu/Catalogs%2C-Policies-Procedures /FERPA/FERPA-Notice-to-Students#0-StatementofRights)** and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees honors and awards received, participation in officially recognized activities and sports, medical residence location and medical residence specialization.