Course Description
Elementary concepts of geometry and measurement, probability, and statistics with an emphasis on problem solving and critical thinking. For a more detailed course description, Student Learning Outcomes, and Exemplary Educational Objectives, go to http://www2.sfasu.edu/math/docs/syllabi/MTH128Syllabus.pdf

Course Prerequisites
MTH 127 with a grade of C or better

Course Time and Meeting Place
- MTH 128 Section 001 meets in Math 213 at 1–2:15 MW
- MTH 128 Section 002 meets in Math 213 at 2:30–3:45 MW.
- MTH 128 Section 006 meets in Math 213 at 12:30–1:45 TuTh.

Instructor
- Thomas W. Judson, Professor
  Department of Mathematics and Statistics
  Office: Math 316
  TEL: (936) 468-1704
  Email: judsontw @ sfasu.edu
- Spring 2020 Office Hours
  - Monday: 5–6 PM (in the AARC)
  - Tuesday: 2–3:30 PM (in Math 316)
  - Wednesday: 12–1 PM (in Math 316)
  - Thursday: 2–3:30 PM (in Math 316)
  - Additional office hours by appointment

Course Goals
- To understand and be able to apply the mathematics essential to successful teaching in the elementary school classroom.
- To acquire a foundation in geometry and measurement, statistics, counting, and probability.
- To gain skill in problem solving and critical thinking.

Student Learning Outcomes (SLO):
At the end of MTH 128, a student who has studied and learned the material should be able to:

1. Use problem solving strategies to model, construct, and solve problems within and outside mathematics.
2. Use technology to explore geometric concepts and perform geometric constructions and transformations.
3. Apply spatial visualization skills to construct, transform, and measure two and three dimensional objects.
4. Apply concepts of congruence and similarity.
5. Use mathematical reasoning to develop strategies of conjecture and justification, leading to geometric proof.
6. Understand measurement as a process and apply basic concepts of measurement to real world settings.
7. Use basic counting principles and apply concepts of probability theory.
8. Apply basic concepts of statistics, including data classification, collection, and analysis.
9. Understand geometry as an axiomatic system.

Program Learning Outcomes
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.

Textbook
The required textbook for this course is Mathematics for Elementary Teachers, 5th ed., by Sybilla Beckman. You will not need to purchase access to MyMathLab. The textbook is available in hardback (ISBN 9780134392790), loose-leaf (ISBN 9780134423319), or electronic "Ebook" (ISBN 9780134423401) formats. Any format is acceptable. This textbook will also be used in both MTH 128 and MTH 129.
Calculators

A simple four-function calculator will work fine for this course. We encourage you to bring your calculator to class with you everyday. However, you should not rely on computers and calculators to such an extent that they keep you from developing your own skills. Technology should be used as an aid, but without a good understanding of the underlying mathematical concepts, the calculator will quite happily mislead you without your even knowing it. In general, technology is a good thing, but as with everything, sometimes too much of a good thing can lead to problems. You may not use your cellphone or your iPod in class for a calculator.

Grading and Exams

The will be three 75 minute exams and a 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 from the Textbook</td>
<td>Class assignment due dates are on the MTH 128 Calendar.</td>
<td>15%</td>
</tr>
<tr>
<td>TEKS Writing Assignments</td>
<td>Class assignment due dates are on the MTH 128 Calendar.</td>
<td>5%</td>
</tr>
<tr>
<td>Exam I</td>
<td>Exam dates are on the MTH 128 Calendar.</td>
<td>20%</td>
</tr>
<tr>
<td>Exam II</td>
<td>Exam dates are on the MTH 128 Calendar.</td>
<td>20%</td>
</tr>
<tr>
<td>Exam III</td>
<td>Exam dates are on the MTH 128 Calendar.</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Monday, May 13 at 6:45-8:45 PM in Kennedy Auditorium</td>
<td>20%</td>
</tr>
</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>
</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>E</td>
</tr>
</tbody>
</table>

When we calculate your final grade at the end of the course, we will calculate a score on a 0–100 point scale using the scores that you have obtained during the course, and using the grade breakdown given above. Your course grade will then be obtained using this table. In the event of a fractional score, we will always round up to the nearest integer. There is no provision for extra credit in this course.

Exam corrections. You rework any exam questions for which you lost credit. Errors should also be classified according to the instructor’s criteria. These assignments will be returned to you for editing until they are completely correct. Credit for this assignment will not be awarded until all errors are completely corrected. These assignments are classified as “homework” and will not alter exam grades.

Resurrection Policy. If you score 70% or better on the final exam and this higher than your lowest midterm exam, we will replace your lowest midterm grade with your final exam grade. The resurrection policy does not apply to your homework grade.

Important Information about the Math 128 Final Exam

The final exam for MTH 128 is on Tuesday, May 5 at 6:30-9 PM with the room to be announced. Students having another exam at this time may take the MTH 128 final at an earlier time.

Exam Policy

Exams are scheduled far in advance, and it is impossible to move the time or date. However, in rare cases where it is impossible for an individual to take the exam at the scheduled time, we will work with you to make other arrangements. Exceptions for taking the exam out of sequence are the following:

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 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. We will assign you a grade based on the rest of your coursework. If you have a conflict with the final exam, you must contact the Registrar. Only the Registrar can schedule an out-of-sequence final exam.

Cell phone use is not permitted in or out of the classroom during all exams. If you bring your cell phone to the exam venue, please remember to turn it off. Violation of this policy will be considered as academic dishonesty and dealt with accordingly. You will not be permitted to use your cell phone as a calculator, so plan ahead.

Homework and Quizzes

Homework assignments from the textbook can be found on the calendar page (http://faculty.sfasu.edu/judsontw/math128/calendar.html). Homework will also be assigned from our textbook and graded. Your daily average is based on your grades from homework from the textbook and any other daily grades that are assigned for a grade. Late homework will not be accepted.

Making Your Homework Easy to Read and Easy to Grade

- Make sure your handwriting is legible.
- Homework with multiple pages should be stapled in the upper left-hand corner.
- In the upper right-hand corner you should write (in this order):
  - Your name
  - MTH 128–001 or MTH 128–002
  - 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. Don’t forget to staple your homework together if you are submitting several pages.
- You should leave the entire left margin blank so that the grader can use this space for scoring and comments.
- To ensure that each problem is graded, problems 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.

The Classroom

Any questions you ask in class will likely be ones that other students will want answered as well, so get over any hesitation you might have and ask questions as the material is presented. You will not be penalized for doing this, no matter how trivial or simple you think your questions might seem. Remember, the class is being held for you to learn the material, not just to give you a time to copy notes off of a blackboard, so be sure to get help when you need it and stay involved in your class.

Getting Help with MTH 128

- Free tutoring is available from the AARC. They offer Learning Teams, one-on-one tutoring, and the Math Walk-in Table. The hours for the Walk-in Table will be 1 PM to 8 PM Monday, Tuesday, Wednesday, and Thursday as well as 4 PM to 8 PM on Sundays. Sign-ups for Learning Teams begin soon. If you need help signing up, the AARC staff (first floor of library, right-hand side) will be happy to assist. You can find more information on the AARC website, (http://www.sfasu.edu/aarc).
- Remember to take advantage of office hours.

Course Outline

- Geometric Figures: Definitions, Properties, and Relationships. Approximate time spent: 15%
  - Build basic vocabulary of geometric figures
  - Analyze properties of two and three dimensional figures
  - Explore relationships between lines, planes, polygons, and solids
- Geometry and Measurement. Approximate time spent: 30%
  - Investigate standard and nonstandard units of measure
  - Explore linear measurement: perimeter, circumference
  - Explore area of regular and irregular shapes
  - Use the Pythagorean Theorem appropriately
  - Explore measures of surface area and volume: lateral surface area, base, height, slant height
  - Investigate temperature as a form of measurement
- Geometry of Congruence, Similarity, and Transformations. Approximate time spent: 20%
  - Investigate properties of congruent and similar figures
  - Explore ratio and proportion as applied to geometric figures
  - Perform basic constructions using Mira, paper folding, compass, straightedge, and technology (when applicable)
  - Perform rigid and similarity transformations on a variety of figures
  - Explore properties and outcomes of rigid transformations
  - Explore types of symmetry
- Statistics. Approximate time spent: 15%
  - Collect, organize, analyze, and present real data
Intermediate Mathematics for Elementary Teachers—Syllabus

- Utilize appropriate types of graphs for various data types
- Interpret graphs and tables
- Investigate the use of graphs to distort statistics
- Analyze measures of central tendency and dispersion

**Counting Principles and Probability.** Approximate time spent: 15%
- Explore basic counting principles
- Understand and utilize factorial notation
- Explore the language of uncertainty: sample space, outcome, event, equally likely, mutually exclusive events, certain and impossible events
- Investigate experimental probability: simulation
- Determine Expected Value

**Credit Hours**

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.

See [http://www.sfasu.edu/policies/5.4-credit-and-contact-hours.pdf](http://www.sfasu.edu/policies/5.4-credit-and-contact-hours.pdf).

**Add/Drop Policy**


**Attendance Policy**

Regular attendance is expected in MTH 128 and is 5% of your course grade. You are allowed two unexcused absences in MTH 128. Additional unexcused absences will result in a one percent deduction in your attendance grade. Attendance and Excused Absences Policy can be found at [http://www.sfasu.edu/policies/class-attendance-6.7.pdf](http://www.sfasu.edu/policies/class-attendance-6.7.pdf).

If you miss class and have a legitimate excuse; e.g. illness or family emergency, contact Stephen F. Austin State University Office of Community Standards and supply proper documentation. The Office of Community Standards will contact all of your instructors and forward the information.

**Withheld Grades Semester Grades Policy (A-54)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**Students with Disabilities**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/)

**Acceptable Student Behavior**

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

**You are off the grid in MTH 128.** You may use your tablet or notebook computer to access the textbook or CoCalc in class; otherwise, consider yourself off the grid when you are in MTH 128. Please be respectful of your fellow students and your instructor. Cell phone use and texting are not allowed in class. Remember to turn your cell phone off and place it in your bag or backpack before entering the classroom. Any cell phone that is visible will be collected and returned to you at the end of class. Exceptions to this rule include volunteer firemen, physicians on-call, those who are on the shortlist to receive an organ transplant, etc.

**Academic Integrity (A-9.1)**

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.
**Definition of Academic Dishonesty.** Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Any acts of academic dishonesty will be dealt with according to University policy. Penalties for academic dishonesty may result in a failing grade for the assignment, failing the course, or even dismissal from the university.

Please read the complete Student Academic Dishonesty policy at [http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf](http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf)
# MTH 128 Course Calendar

## MTH 128 Course Calendar for MW Classes (Sections 001 and 002)

## MTH 128 Course Calendar for TuTh Classes (Sections 006)

## MTH 128 Course Calendar for MW Classes (Sections 001 and 002)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Classroom Activities What to Bring to Class</th>
<th>Assignment Notes and What to Do Before Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wednesday 1/15/20</td>
<td>Introduction Using Compass and Protractor §10.1. Lines and Angles</td>
<td>10A, 10B</td>
<td>Read §10.1.</td>
</tr>
<tr>
<td>2</td>
<td>Monday 1/20/20</td>
<td>MLK Day</td>
<td>No Class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wednesday 1/22/20</td>
<td>§10.1. Lines and Angles (continued)</td>
<td>10C, 10D, 10E, 10G</td>
<td>§10.1. Problem 2; pp. 463–465</td>
</tr>
<tr>
<td></td>
<td>Wednesday 1/29/20</td>
<td>§10.4. Triangles, Quadrilaterals and Other Polygons</td>
<td>10P, 10Q, 10R</td>
<td>§10.3. Problems 2, 3; pp. 476–477</td>
</tr>
<tr>
<td></td>
<td>Wednesday 2/5/20</td>
<td>Exam I—Chapter 10</td>
<td></td>
<td>§10.4. Problems 8, 11; pp. 487–490</td>
</tr>
<tr>
<td>7</td>
<td>Monday 2/24/20</td>
<td>§12.6. Area and Circumference of Circles and the Number Pi</td>
<td>12N, 12O</td>
<td>§12.4. Problems 4, 9, 10, 11; pp. 547–549</td>
</tr>
<tr>
<td>8</td>
<td>Monday 3/2/20</td>
<td>Video</td>
<td></td>
<td>§12.8. Problems 4, 6, 9; pp. 568–570</td>
</tr>
<tr>
<td></td>
<td>Wednesday 3/4/20</td>
<td>Exam II—Chapter 11–12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Monday 3/9/20</td>
<td>Spring Recess</td>
<td>No Class</td>
<td></td>
</tr>
<tr>
<td>Week</td>
<td>Date</td>
<td>Topic</td>
<td>Classroom Activities What to Bring to Class</td>
<td>Assignment Notes and What to Do Before Class</td>
</tr>
<tr>
<td>------</td>
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<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
</tbody>
</table>
| 10   | 3/16/20    | §12.9. Using the Moving and Additivity Principles to Prove the Pythagorean Theorem  
§13.1. Polyhedra and Other Solid Shapes | 12U, 12V, 13A, 13B | TEKS writing assignment #2 due |
| 11   | 3/18/20    | §13.2. Patterns and Surface Area  
§13.1. Problem 3; pp. 587–588 |
§14.2. Problem 8; pp. 625–626 |
| 15   | 4/6/20     | §14.5. Similarity  
§14.6. Problems 1, 5, 6; pp.662–665 |
| 18   | 4/15/20    | Exam III—Chapters 12.9, 13, and 14 | | |
| 19   | 4/20/20    | §15.1. Formulating Statistical Questions, Gathering Data, and Using Samples  
§15.2. Displaying Data and Interpreting Data Displays | 15A, 15C, 15E, 15G | TEKS writing assignment #3 due |
| 20   | 4/22/20    | §15.3. The Center of Data: Mean, Median, and Mode | 15K, 15L, 15N | §15.1. Problems 5, 10; pp. 680–681  
§15.2. Problem 3(a, b, 5(a, b, c); pp. 691–693 |
| 22   | 4/29/20    | Video | | §15.4. Problems 1, 12; pp. 715–719 |
| 23   | 5/5/20     | Final Exam at 6:30–9 PM  
Place TBA | | |

MTH 128 Course Calendar for TuTh Classes (Section 006)

Week 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Sections</th>
<th>Problems</th>
<th>Assignments</th>
</tr>
</thead>
</table>
| 5    | Tuesday 2/11/20 | §11.1. Concepts of Measurement  
§11.4. Converting from One Unit of Measurement to Another  
|      | Thursday 2/13/20 | §11.2. Length, Area, Volume, and Dimension  
§12.1. Areas of Rectangles Revisited  
§12.2 Moving and Additivity Principles About Area | 11E 12A, 12B | §11.1. Problem 3; p. 504  
§11.4. Problems 1, 3; pp. 521–523 |
| 6    | Tuesday 2/18/20 | §12.3. Areas of Triangles  
§12.4. Areas of Parallelograms and Other Polygons | 12C, 12D, 12E, 12F | §12.1. Problem 4; pp. 529–530  
§12.2 Problems 3, 6; pp. 534–535 |
|      | Thursday 2/20/20 | §12.6. Area and Circumference of Circles and the Number Pi  
| 7    | Tuesday 2/25/20 | §12.3. Areas of Triangles  
§12.4. Areas of Parallelograms and Other Polygons | 12C, 12D, 12E, 12F | §12.1. Problem 4; pp. 529–530  
§12.2 Problems 3, 6; pp. 534–535 |
|      | Thursday 2/27/20 | §12.6. Area and Circumference of Circles and the Number Pi  
| 8    | Tuesday 3/3/20 | §12.3. Areas of Triangles  
§12.4. Areas of Parallelograms and Other Polygons | 12C, 12D, 12E, 12F | §12.1. Problem 4; pp. 529–530  
§12.2 Problems 3, 6; pp. 534–535 |
|      | Thursday 3/5/20 | §12.6. Area and Circumference of Circles and the Number Pi  
|      | Tuesday 3/17/20 | §12.9. Using the Moving and Additivity Principles to Prove the  
Pythagorean Theorem  
§13.1. Problem 3; pp. 587–588 |
§13.1. Problem 3; pp. 587–588 |
| 11   | Tuesday 3/24/20 | §13.3. Volumes of Solid Shapes  
|      | Thursday 3/26/20 | §14.1. Reflections, Translations, and Rotations  
§14.2. Problem 8; pp. 625–626 |
| 12   | Tuesday 3/31/20 | §14.3. Congruence  
§14.2. Problem 8; pp. 625–626 |
|      | Thursday 4/2/20 | §14.5. Similarity  
§14.4. Problems 1, 3, 7; pp. 642–643  
§14.6. Problems 1, 5, 6; pp.662–665 |
§14.6. Problems 1, 5, 6; pp.662–665 |
|      | Thursday 4/9/20 | Easter Holiday | No Class | §15.1. Problems 5, 10; pp. 680–681  
§15.2. Problem 3(a, b), 5(a, b, c); pp. 691–693 |
| 14   | Tuesday 4/14/20 | Video | No Class | §15.1. Problems 5, 10; pp. 680–681  
§15.2. Problem 3(a, b), 5(a, b, c); pp. 691–693 |
|      | Thursday 4/16/20 | Exam III—Chapters 12.9, 13, and 14 | 15A, 15C, 15E, 15G | TEKS writing assignment #3 due  
§15.1. Problems 5, 10; pp. 680–681  
§15.2. Problem 3(a, b), 5(a, b, c); pp. 691–693 |
| 15   | Tuesday 4/21/20 | §15.1. Formulating Statistical Questions, Gathering Data, and Using  
Samples  
§15.2. Displaying Data and Interpreting Data Displays | 15A, 15C, 15E, 15G | TEKS writing assignment #3 due  
§15.1. Problems 5, 10; pp. 680–681  
§15.2. Problem 3(a, b), 5(a, b, c); pp. 691–693 |
§15.2. Problem 3(a, b), 5(a, b, c); pp. 691–693 |
§15.4. Problems 1, 12; pp. 715–719 |
|      | Thursday 4/30/20 | Video | No Class | §15.1. Problems 5, 10; pp. 680–681  
§15.2. Problem 3(a, b), 5(a, b, c); pp. 691–693 |
| 17   | Tuesday 5/5/20 | Final Exam at 6:30–9 PM  
Place TBA | No Class | §15.1. Problems 5, 10; pp. 680–681  
§15.2. Problem 3(a, b), 5(a, b, c); pp. 691–693 |

http://faculty.sfasu.edu/judsontw/math128/calendar.html