College of Education
TEMPLE UNIVERSITY

EDUC 1016 Mathematics for Educators, Fall 2025

Instructor: Molly Pooler (she/her), mollykpooler@temple.edu

Class Meetings: No Required Class Time; Online Asynchronous through Canvas

Virtual Student Drop-in Hours: Schedule a Zoom or phone meeting by email

---

Welcome to EDUC1016! This semester, we will explore mathematical concepts as math students and future teachers. We will focus less on "getting it right" and more on strategies, thinking, and problem-solving. We will consider how to take these "habits of mind" to our future classroom - no matter the content!

A little more about your instructor! I am looking forward to getting to know each of you this semester. Outside of math, I love hiking, traveling, and reading fiction. Though I used to live in Philadelphia, since 2018, I have been traveling full-time in an RV with my husband and our two dogs.

About our virtual classroom! As your instructor, I am committed to creating a virtual classroom environment that welcomes all students. I am here to support you in any way. Please email me to schedule a virtual drop-in meeting - to connect, share more about yourself, receive assistance, or anything else. You are not alone this semester! I believe that every student can succeed in mathematics and that there is no such thing as a "math person."

Quick Snapshot of Information to Get Started

- **Zero-Cost Course**: All course materials are free in this course! I will teach from Mathematics for Elementary Teachers with Activities, 6th Edition, by Sybilla Beckmann, and the textbook sections are available in Canvas through the Course Reserves. Additionally, there are free learning resources in the Course Resource List.

- **Math support**: I want you to feel supported and successful in this class. You can sign up for free tutoring in the Success Center, and whenever you need help with a problem, you can email me with any questions. We can also set up a virtual Zoom or phone call for support if you'd like. Advocate for your needs!

- **Tech support:** I wish I could help with everything, but I leave technical issues to professionals. Contact TU Tech Support online through TUHelp. You can also solve Canvas-related issues by clicking "chat" on the left side of your Canvas screen.

- **Overview of graded assignments**: participation (4%), skill checks (8%), discussion board posts and replies (30%), independent assignments (45%), and final assignment (13%).

- **Due dates and planning your time**: Use the Schedule and Due Dates table in the syllabus or document on Canvas. It contains every due date for the semester.

Table of Contents

WOAH! This syllabus is long. I mean, even the table of contents is more than a page? I know.

- Use the Table of Contents to help you navigate the entire syllabus - it contains important details, policies, and tips for success this semester.
- If you're not sure where to start, begin by reviewing the topics with a 🔑(Key image).

Important Information About The Semester 🔑

How This Course Will Be Taught

There are no required online meeting times scheduled for this class. All recorded lecture videos are available for you to view on Canvas.

As you watch these videos, imagine you are in a physical classroom.

- Turn your phones on silent and set aside time to focus on the material
- Complete each example and practice problems with me. Use the provided slide PDFs to help you take notes.
- Pause the video often and replay certain sections as needed. You can also slow down the playback speed if I am talking too fast.
- You can raise your hand (ask for clarification or help) by emailing me any questions you have!

There will be zero tolerance for explicit language, microaggressions, racist remarks, actions, or behavior in this course. It is imperative that every student in this classroom feels safe, heard, and respected. I encourage you to let me know if there are any areas of improvement for this syllabus, my policies, or this course to make this classroom more equitable.

How I Will Interact With You in Canvas

- I created all lecture videos to mirror an experience as if we were in a regular classroom.
- I will provide detailed feedback on all assignments and you can view this feedback on Canvas.
- I am always available by email for additional support - please email me at mollykpooler@temple.edu or through the “inbox” tool in Canvas.

How to Contact Me (and please do!)

I value an interactive and personal learning environment, and I want to make sure you know that you're not alone in the course.

Please email me at mollykpooler@temple.edu with questions, concerns, or just to dig deeper into that week's material.

- I typically respond to emails within 24 hours, Monday through Thursday.
- I believe in work-life balance for all of us, so I typically do not respond to any emails received on Friday or over the weekend.
- I am not ignoring you! I promise I will get back to you as soon as I am online and available. I do encourage you to email me whenever you need assistance - but note that I might not reply as quickly Friday-Sunday.

You are welcome to text or call (517-614-9095), but the best method to reach me is through email. Please respect my time and do not text or call multiple times. I promise to get back to you regarding your concern by email, text, or call when I return to the office.

Tips for Success This Semester

I want you to be successful in this course!

1. Log in to Canvas at least three times per week to complete your work.
2. Use the Canvas Calendar and Course Schedule and Due Dates to create alerts on your phone or your computer for due dates or anything else you think you might forget!
3. Set up your Notifications in Canvas (you can receive notifications via text) so you don't miss any important announcements!
4. Create a schedule and routine as if we met live.
    - Schedule at least 2 days a week that total approximately 5-7 hours on this course each week.
    - If we met in person, you would have 4 in-person contact hours of learning (videos) and at least 4 hours of outside-of-class work (Skill Checks, Discussion Boards, and Assignments).
5. If you miss a deadline, feel overwhelmed, or need any support, please email me so I can help you find a system or routine that works best for you!

There is a temptation to think components of your online work need not be taken as urgently as activities for in-person classes. The problem is that your online assignments pile up, and you fall behind. I am here to support you, so please email me at mollykpooler@temple.edu so that we can work together to create a plan for your success!

Accessibility

It is important to me that every student has the opportunity to succeed in this course. Please reach out to me if ANY obstacle is in the way of your success!

Any student who has a need for accommodations based on the impact of a documented disability or medical condition should contact Disability Resources and Services (DRS) located in the Howard Gittis Student Center South, 4th Floor at drs@temple.edu or 215-204-1280 to request accommodations and learn more about the resources available to you. If you have a DRS accommodation letter to share with me, or you would like to discuss your accommodations, please contact me as soon as possible. I will work with you and with DRS to coordinate reasonable accommodations for all students with documented disabilities. All discussions related to your accommodations will be confidential. Students can learn more about the accommodation process and pre-register on the DRS website. Students may register at any time during the semester, but accommodations are not active until you register, so I recommend doing so as early in the semester as possible.

EDUC1016 Frequently Asked Questions (FAQ) 🔑

Q: What materials are required for the course? Is this really a zero-cost course?

- Yes! This is a zero-cost course; all course materials are free!
    - Free Textbook: I will teach from Mathematics for Elementary Teachers with Activities, 6th Edition, by Sybilla Beckmann, and the textbook sections are available in Canvas through the Course Reserves. Additionally, check out the Course Resource List.
    - Free MyOpenMath Software: This is a free online homework software. However, because this is a free source, sometimes it can be glitchy. If you think there is an error, email me and I can help you solve it!

Read more in the syllabus: required materials

Q: How do I know when something is due?

Use the Course Schedule and Due Dates, my Monday announcements (be sure your Canvas notifications are turned on!), and Canvas alerts to help you follow the schedule.

Q: Can I turn in assignments late?

Please turn in work on time; it can be easy to fall behind and have work pile up. However, I understand that things come up and that we all have needs outside of the classroom.

- You may submit most assignments up to 3 days late without penalty or by requesting an extension. The only exceptions to this are assignments due after 11/30.
- If you need more than 3 days on an assignment or you've fallen behind in the course, please email me. It is possible that these late assignments will not result in point deduction, but we must communicate and create a plan together.
    - Late work submitted more than 3 days late, without communicating with me, may result in a point deduction or zero.
- Due to short grading windows and time restrictions at the end of the semester, no late work can be considered after 11/30. Please email me if you think special circumstances may apply.
- I respect your privacy; you never need to tell me why an assignment is late or will be late, but I do want you to email me to stay accountable and get any support needed.

Read more in the syllabus: late work policy and *whole person support*

Q: Which assignments can I work on with a tutor or classmate?

- Please work alone on your independent written assignments. There is a temptation to ask a friend for help rather than turn in something that feels imperfect. Please resist this temptation! You can revise work for credit, so please do your best independently so you can learn from your mistakes.
    - If you choose to *revise* your written assignments, you can work with me, a tutor, or a classmate (but you'll describe who you worked with in the revision explanation).
- You can work with a tutor or classmate on Skill Check problems and Discussion Boards (but your responses should *not* be identical). *Read more in the syllabus: academic honesty policy*

Q: I don't like my grade on an assignment - can I revise it for credit?

Yes! You can revise every assignment except Chapter 15 and the final assignment. There are details in the syllabus, and you can always email me for clarification or help.

Read more in the syllabus: revisions policy and procedures

Q: Is AI allowed in this class?

- No, the use of generative AI tools (such as ChatGPT, DALL-E, etc.) is not permitted in this class; therefore, any use of AI tools for work in this class may be considered a violation of Temple University's Academic Honesty policy and Student Conduct Code, since the work is not your own. The use of unauthorized AI tools will result in a 0 and possible course failure.

Q: How do I complete course assignments?

- Canvas Discussion Boards: Type any explanations and reflections (for accessibility reasons). Any photos of work need to be embedded, not attached. Read the tutorial in the syllabus. Label and organize your work. Replies should focus on the math and extension questions - not just encouraging each other.
- Independent written assignments: You must work alone - I want to know what *you* know! You can use classroom resources, but *not the internet or AI.* Upload all of your work as a single PDF using a free scanner app. Try every problem - leave nothing blank - and show all of your work!
- Final: This is a renewable assignment where you provide resources or create study supports that will be added to the Course Resource List.

Read more in the syllabus: discussion boards, independent assignments, final assignment

Q: Who can help with tech issues like embedding photos, etc?

Contact **TU Tech Support** online: TUHelp (http://tuhelp.temple.edu), or by phone 215-204-6227. Contact **Canvas** by using the left side for the "chat" feature.

Q: Help! I am having difficulty with a problem! What do I do?

- Get quick(ish) assistance by emailing me a picture of the problem and your work.
- Schedule a phone call or Zoom meeting with me by emailing me.
- Sign up for one-time or regular tutoring at the success center

Read more in the syllabus: how to get help this semester

Q: I emailed you Saturday - why are you ignoring me?

I'm not! I am offline from Friday afternoons through Sunday but will always get back to you when I am back online on Mondays. *Read more in the syllabus: how to contact me (and do!)*

Q: Why is there so much work?

A four-credit class is no joke! I have done my best to space out our content and assignments and should you need any support in time management or have any suggestions, please reach out!

Read more in the syllabus: tips for success this semester

Course Schedule and Due Dates 🔑

Each week follows a similar pattern and note that all work can be completed *before* due dates:

- **Monday - Wednesday**
  - Watch lecture videos, begin work for the week
- **Wednesdays**
  - Post for Discussion Boards due
- **Thursdays**
  - Independent Assignments due
  - MyOpenMath Skill Checks due
  - Participation due
  - One reply to a classmate's Discussion Board post due

Course Schedule and Due Dates

****This schedule below is tentative and subject to change****

Week	Topics	Assignments Due	Schedule and Due Dates
Week 1 (8/25 - 8/31*)	**Growth Mindset** ● More about you, me, and this course!	Introduction ● Post ● One reply Syllabus Quiz Growth Mindset Reflection	**Monday - Wednesday** ● *Read the syllabus* ● *Complete the Growth Mindset modules linked on Canvas* **Thursday** ● Introduction due ● Growth Mindset Reflection due ● Syllabus Quiz due **Begin** watching Week 2 videos
Week 2 (9/1*-9/7)	**Chapter 9: Algebraic Foundations** ● 9.1 Numerical Expressions ● 9.2 Expressions with Variables ● 9.3 Equations	MyOpenMath Problems ● Skill Check 1	**~~Monday~~ Tuesday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Thursday** ● Skill Check 1 due

Week	Topics	Assignments Due	Schedule and Due Dates
Week 3 (9/8-9/14)	**Chapter 9: Algebraic Foundations** ● 9.4 Word Problems ● 9.6 Functions ● 9.7 Linear and Other Relationships	Discussion Board 1 ● Post ● One reply	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Wednesday** ● Post for Discussion Board 1 **Thursday** ● One reply to Discussion Post 1
Week 4 (9/15-9/21)	**Chapter 10: Geometry** ● 10.1 Lines and Angles ● 10.3 Circles and Spheres ● 10.4 Triangles, Quadrilaterals, and Other Polygons	MyOpenMath Problems ● Skill Check 2 Participation Post	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Thursday** ● Skill Check 2 due ● Canvas Exit Ticket due
Week 5 (9/22-9/28)	**Chapter 11: Measurement** ● 11.1 Concepts of Measurement ● 11.2 Length, Area, Volume, and Dimension	Discussion Board 2 ● Post ● One reply	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Wednesday** ● Post for Discussion Board 2 **Thursday** ● One reply to Discussion Post 2
Week 6 (9/29-10/5)	**Chapters 9, 10 and 11**	Independent Written Assignment 1	**Monday - Wednesday** ● *Work on your assignment!* **Thursday** ● Independent Written Assignment 1 due

Week	Topics	Assignments Due	Schedule and Due Dates
Week 7 (10/6-10/12)	**Chapter 12: Area of Shapes** ● 12.6 Areas and Circumference of Circles and Pi ● 12.8 Contrasting and Relating Perimeter ● 12.9 Pythagorean Theorem	MyOpenMath Problems ● Skill Check 3	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Thursday** ● Skill Check 3 due
Week 8 (10/13-10/19*) Wellness Break Oct 17	**Chapter 12: Area of Shapes** ● 12.6 Areas and Circumference of Circles and Pi ● 12.8 Contrasting and Relating Perimeter ● 12.9 Pythagorean Theorem	Discussion Board 3 ● Post ● One reply	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Wednesday** ● Post for Discussion Board 3 **Thursday** ● One reply to Discussion 3
Week 9 (10/20-10/26)	**Chapter 13: Solid Shapes and Their Volume and Surface Area** ● 13.1 Polyhedra ● 13.2 Patterns and Surface Area ● 13.3 Volume of Solid Shapes	MyOpenMath Problems ● Skill Check 4 Participation Post	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Thursday** ● Skill Check 4 due ● Canvas Exit Ticket due
Week 10 (10/27-11/2)	**Chapter 14: Geometry of Motion and Change** ● 14.1 Reflections, Translations, and Rotations ● 14.2 Symmetry ● 14.3 Congruence ● 14.5 Similarity	Discussion Board 4 ● Post ● One reply	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for the week* **Wednesday** ● Post for Discussion Board 4 **Thursday** ● One reply to Discussion 4

Week	Topics	Assignments Due	Schedule and Due Dates
Week 11 (11/3-11/9)	**Chapter 12, 13, 14**	Independent Written Assignment 2	**Monday - Wednesday** ● *Work on your assignment!* **Thursday** ● Independent Written Assignment 2 due
Week 12 (11/10-11/16)	**Chapter 15: Statistics** ● 15.1 Gathering Data, Formulating Statistical Questions ● 15.2 Data Displays ● 15.3 Measures of central tendency ● 15.4 Summarizing, Describing, Comparing Distributions	Discussion Board 5 ● Post ● One reply	**Monday - Wednesday** ● *Watch and take notes on lecture videos* ● *Begin work for next week* **Wednesday** ● Post for Discussion Board 5 **Thursday** ● One reply to Discussion 5 **Begin work on** Independent Written Assignment 3
Week 13 (11/17-11/23)	**Chapter 15**	Independent Written Assignment 3	**Monday - Wednesday** ● *Work on your assignment!* **Thursday** ● Independent Written Assignment 3 due
Independent assignment and discussion board revisions / late work will not be considered after this point. Please email me if you think special circumstances might apply.			
Break 11/24 - 11/30			
Week 14 (12/1-12/7)	**All Course Topics**	Participation Post	*Work on your final assignment!* **Thursday** ● Participation due
Week 15 (12/8-12/14*)	**All Course Topics**	Final Assignment	*Work on your final assignment!* **Thursday** ● Final Assignment due

Course Resource List 🔑

This is my first year trying a resource list, and your experience and feedback are welcome! My goal is for us to work together, as a collaborative community of teachers and students, to build a robust resource list of free, current, helpful, and engaging resources for current and future students.

This resource list is new, and as of August 2025, the resources are very one-dimensional. They are only textbook links to support your math skills, rather than pedagogical education resources about the subjects.

For your final assignment, you will create or compile resources like podcasts, videos, research, journals, open textbooks, or something else! Throughout the semester, you will gather resources you have used or you think will be helpful and document your ideas or links on the checkpoints in the independent assignments. You will decide which resources you would like me to share with future students and tell me more about each one.

Resource List Questions

Q: What is this resource list?

We have access to a great textbook on Canvas, but there are many free resources available online that are worth reviewing and utilizing in our course. These resources allow us to consider different teacher perspectives, current pedagogical studies, local experiences, and more.

Q: How should I use the resource list this semester?

We will only be using 20% of the main textbook, and those section pages are available in Canvas through “Course Reserves” for free. However, they do not include any practice problems. The current resource list offers additional math textbooks for you to use to increase your skills.

I like our main textbook a lot, but it does not consider various perspectives, new pedagogical studies, local teaching experiences, and more. As more students use, consider, and submit outside resources in their final assignment, this resource list will grow in relevance and support. As the resource list grows, future students might choose to lean on this resource list first, instead of the textbook pages, to build a better understanding of the course topics.

Q: How will I contribute to this resource list?

In alignment with Open Education principles, this resource list will be generated *both* by your professor and your fellow students. Together, we will collaborate in building a robust resource list for all future students who take this course.

For your final assignment, you will create or compile resources like podcasts, videos, research, journals, blog posts, open textbooks, or something else! You will share resources you found helpful or that you think future students might find helpful.

There will be checkpoints on each independent assignment where you can jot down notes or record any resources you think you may want to highlight on your final assignment.

I am available to help or provide support so please email *mollykpooler@temple.edu* if you have any questions.

Algebraic Foundations

Chapter 9, Sections 9.1 - 9.3, textbook pages are available for free in the Course Reserves on Canvas.

Here are additional free resources to support your learning:

- Numerical Expressions: Use the Language of Algebra
- Expressions with Variables: Evaluate, Simplify, and Translate Expressions
- Equations
    - Solve Equations Using the Subtraction and Addition Properties of Equality
    - Solve Equations using the Division and Multiplication Properties of Equality
    - Solve Equations with Variables and Constants on Both Sides
    - Use a General Strategy to Solve Linear Equations
    - Solve Equations with Fractions or Decimals
    - Solve a Formula for a Specific Variable
- Word Problems: Use a Problem-Solving Strategy
- Functions
    - Relations and Functions
    - Graphs of Functions
- Linear and Other Relationships
    - Linear
        - Solve Linear Equations Using the Subtraction and Addition Properties of Equality
        - Solve Linear Equations Using the Division and Multiplication Properties of Equality
        - Solve Linear Equations with Variables and Constants on Both Sides
        - Solve Linear Equations with Fraction or Decimal Coefficients
        - Graph Linear Equations in Two Variables
        - Slope of a Line
        - Find the Equation of a Line
    - Quadratic
        - Solve Quadratic Equations Using the Square Root Property

        - Solve Quadratic Equations Using the Quadratic Formula
        - Solve Applications Modeled by Quadratic Equations
        - Graphing Quadratic Equations in Two Variables
    - Exponential: Evaluate and Graph Exponential Functions

Geometry

Chapter 10, Sections 10.1, 10.3, 10.4, textbook pages are available for free in the Course Reserves on Canvas.

Here are additional free resources to support your learning:

- Lines and Angles
    - Points, Lines, and Planes
    - Angles
- Circles and Spheres
    - Solve Geometry Applications: Circles and Irregular Figures
    - Polygons, Perimeter, and Circumference
- Triangles, Quadrilaterals, and Other Polygons
    - Use Properties of Angles, Triangles, and the Pythagorean Theorem
    - Use Properties of Rectangles, Triangles, and Trapezoids
    - Polygons, Perimeter, and Circumference

Measurement

Chapter 11, Section 11.1, 11.2, textbook pages are available for free in the Course Reserves on Canvas.

Here are additional free resources to support your learning:

- Concepts of Measurement
    - Systems of Measurement
    - The Metric System
- Length, Area, Volume, and Dimension
    - Use Properties of Rectangles, Triangles, and Trapezoids
    - Volume and Surface Area

Area of Shapes

Chapter 12, Sections 12.1 - 12.4, 12.6, 12.8, 12.9, textbook pages are available for free in the Course Reserves on Canvas.

Here are additional free resources to support your learning:

- Areas of Rectangles: Use Properties of Rectangles, Triangles, and Trapezoids
- Principles About Area:
  - Area
  - Measuring Area
- Areas of Triangles
  - Use Properties of Angles, Triangles, and the Pythagorean Theorem
  - Triangles
- Areas of Parallelograms and Other Polygons
  - Polygons, Perimeter, and Circumference
  - Tessellations
  - Use Properties of Rectangles, Triangles, and Trapezoids
- Areas and Circumference of Circles and Pi:
  - Solve Geometry Applications: Circles and Irregular Figures
- Contrasting and Relating Perimeter
  - Polygons, Perimeter, and Circumference
  - Area
- Pythagorean Theorem
  - Use Properties of Angles, Triangles, and the Pythagorean Theorem
  - Right Triangle Trigonometry

Solid Shapes and Their Volume and Surface Area

Chapter 13, Sections 13.1 - 13.3, textbook pages are available for free in the Course Reserves on Canvas.

Here are additional free resources to support your learning:

- Polyhedra: Volume and Surface Area
- Patterns and Surface Area
  - Volume and Surface Area
  - Solve Geometry Applications: Volume and Surface Area
- Volume of Solid Shapes
  - Volume and Surface Area
  - Measuring Volume
  - Solve Geometry Applications: Volume and Surface Area

Geometry of Motion and Change

Chapter 14, Sections 14.1 - 14.3, 14.5, textbook pages are available for free in the Course Reserves on Canvas.

Here are additional free resources to support your learning:

- Reflections, Translations, and Rotations
  - Transformation of Functions
  - Tessellations
- Symmetry: Tessellations
- Congruence
  - Triangles
  - Polygons, Perimeter, and Circumference
- Similarity
  - Solve Proportion and Similar Figure Applications
  - Triangles

Statistics

Chapter 15, 15.1 - 15.4, textbook pages are available for free in the Course Reserves on Canvas.

Here are additional free resources to support your learning:

- Gathering Data, Formulating Statistical Questions
  - Gathering and Organizing Data
  - What Is Data Science?
- Data Displays
  - Visualizing Data
  - Scatter Plots, Correlation, and Regression Lines
  - Stem-and-Leaf Graphs (Stemplots), Line Graphs, and Bar Graphs
  - Histograms, Frequency Polygons, and Time Series Graphs
  - Box Plots
- Measures of central tendency
  - Mean, Median, and Mode
  - Measures of the Center of the Data
  - Skewness and the Mean, Median, and Mode
- Summarizing, Describing, Comparing Distributions
  - Range and Standard Deviation
  - Measures of the Spread of the Data
  - Percentiles
  - The Normal Distribution
  - Applications of the Normal Distribution

About EDUC1016

Course Description:

EDUC1016 is intended for undergraduate students seeking Pennsylvania teaching certification in early childhood education, middle grades, secondary education, foreign language education, music, or art education. In alignment with mathematics competencies required for admission into a teacher education program, the course will develop deep, connected understandings of content included in Geometry, Measurement and Data, Expressions & Equations, and Operations and Algebraic Thinking.

NOTE: To demonstrate basic math skills required for candidacy in a Pennsylvania teacher education program, instead of CORE/PAPA testing or SAT/ACT scores, candidates must complete and receive grades of B or higher in both MATH 1015 and EDUC 1016.

Course Overview:

Researchers have shown that students learn mathematical concepts more productively when they are given opportunities to struggle with solving problems, to communicate and share their ideas, and to interact with different representations of mathematical objects, especially representations that are concrete and visual. By this research, we will work in a student-centered and inquiry-based class that provides opportunities to learn cooperatively and work with concrete and virtual manipulatives.

You will not only learn how these instructional techniques and materials can be used in the classroom, but also get a first-hand experience with these as you participate as a learner in this class. In addition to a focus on mathematical content, you will have opportunities to become familiar with research on how students learn mathematics and to consider ways in which this knowledge can be integrated into your future teaching. In summary, you will have opportunities to develop knowledge, understanding, and skills useful for teaching elementary mathematics.

Course Objectives:

These objectives are assessed through discussion boards and independent assignments.

1. Demonstrate a deep understanding of the content from the content included in the Geometry, Measurement and Data, Expressions & Equations, and Operations
2. Demonstrate an understanding of what it means to think mathematically;
3. Use and reflect on the educational value of manipulatives/technology when working with concepts;
4. Identify the ways in which course material connect with strands in PK-12 mathematics curricula;
5. Demonstrate an understanding of the way in which students' understandings of content develops over time;
6. Identify the conceptual challenges students face in learning the content examined;
7. Evaluate instructional tasks for their potential to foster a deep understanding of content included in the PK-12 mathematics curriculum

Required Materials 🔑

Canvas

This course uses the Canvas learning system for the entire class. You can access this through the TU portal. All communication, grading, learning modules, etc. will be available in Canvas.

Textbook Options and Homework Software

This course is zero-cost and has been redesigned with support from the Textbook Affordability Project at Temple University Libraries

- **Free Textbook:** I will teach from Mathematics for Elementary Teachers with Activities, 6th Edition, by Sybilla Beckmann, and the textbook sections are available in Canvas through the Course Reserves. Additionally, there are free student and professor-generated learning resources in the Course Resource List.
- **Free MyOpenMath Software:** MyOpenMath (MOM), openly licensed educational materials available at no cost to you. Sometimes the MOM software can be frustrating to use and may have some glitches. Should you encounter any difficulty, please pause and email me so that I can offer support.

You may choose to purchase the optional eText from the Follett Bookstore at Temple University or through Pearson. You may obtain your course materials from any vendor you choose. For this course, the cost range, including all books, online access fees, expenses, and other materials, is approximately $60. You may purchase a previous edition to reduce cost.

I am interested in your experience using these materials and welcome your feedback at any time throughout the semester.

Technology Requirements and Support

To participate in this course, you will need the equipment, software, and internet access necessary to reliably use Zoom and Canvas as well as “productivity tools” like word processors and slide show creators.

Limited resources are available for students who do not have the technology they need for class. Students with educational technology needs, including no computer or camera or insufficient Wifi access, should submit a Student Technology Assistance Application located in TUPortal and linked from the Dean of Students Support and Resources webpage. The university will endeavor to meet needs, such as with a long-term loan of a laptop or Mifi device, a refurbished computer, or subsidized internet access.

Note that there are technology resources available for students, including on-campus computers available for student use, the Tech Center computer labs and free laptop and battery borrowing at Charles Library, software that is available for free download and other specialty software that may be available for remote access through ITS.

Calculators

Using calculators is encouraged in class, on homework, and on assignments. When you use your calculator on an assignment, show your work by explaining what you calculated and why you chose to do that. Please have at least a four-function calculator or access to online calculators for this course.

Scanner App 🔑

A scanner is not required, but a (free) scanner app helps consolidate your photos of work into a single .pdf file to upload. Students have recommended the following free scanner apps: CamScanner (in batch mode), and Microsoft Office Lens. Notability, DocScan. If you find a scanner app that you'd like to recommend for future semesters, please let me know!

Chrome Browser

Canvas seems to work best with the Chrome web browser.

Graphing Paper and Ruler (digital ruler is okay)

For this course, all graphs must be completed by hand on graph paper. You may print free graph paper offline or purchase graph paper. Some free resources to consider:

- http://www.printfreegraphpaper.com/
- https://www.printablepaper.net
- https://www.math-aids.com/

Additional Materials

You may need the following materials in the Explorations, Discussion Boards, and Independent Assignments. Whenever possible, I try to provide digital options or suggestions for alternate materials but please be creative! For the explorations, some items you may need:

- Paper clip(s)
- String
- Compass (optional)
- Beans (or items to count)
- Scissors
- Snap cubes (digital option provided)
- Printer (only if you already have access to one, it may be helpful when we get to nets)

There may be other materials listed throughout the course. Please reach out if you have any questions about accessing materials.

Grading and Course Requirements:

Grades will be updated weekly in Canvas and can be monitored and tracked in the “grade book” section. Final course grades will be assigned based on the points of course assignments listed below.

Course Assignment	Percentage of Grade
Independent Assignments	45%
Discussion Board and Replies	30%
Final Assignment	13%
Skill Checks	8%
Participation	4%

The scale used to calculate the final course grade is as follows:

Letter Grade	Percentage	More details
A	90%-100%	A is from 93% to 100% and an A minus is from 90% to 92%.
B	80% - 89%	B plus is from 87% to 89%, a B is from 83% to 86%, and a B minus is from 80% to 82%.
C	70% - 79%	C plus is from 77% to 79%, a C is from 73% to 76%, and a C minus is from 70% to 72%.
D	50% - 69%	D plus is from 65% to 69%, a D is from 55% to 64%, and a D minus is from 50% to 54%.
F	0% - 49%	

Assignment Details

Participation (4% of total grade)

Connect with me and your classmates about the course material. No math is required; instead these focus on your thinking and learning. These include: Padlet Video Posts, Growth Mindset Reflections, Syllabus Quizzes, and Canvas Exit Tickets.

MyOpenMath Skill Checks (8% of total grade)

Skill-based problem sets must be completed by 11:59 pm on their assigned due dates. Access through Canvas. You may work with a tutor or a classmate on these problems.

These can be glitchy - email me if you get stuck or suspect an error in the software. Do not spend more than 5-10 minutes on any problem. If you find yourself spending more time than that, email me a picture of the problem and your work so I can help you move forward.

Canvas Discussion Board - Post and Reply (30% of total grade)

Critical thinking-based problems that extend work to different contexts. Access through Canvas. Complete one post and one reply.

Components of the Discussion Board Post

- Answer the problems and show all your work.
- Include handwritten annotations and typed explanations. Embed photos directly into the Canvas post (Read a tutorial on how!)
- For each problem:
    a. Write about your experience and takeaways as a student. What will you take from this problem as a student? For this class? Future classes?
    b. Write about your experience and takeaways as a future educator. What will you take from this problem as a future educator for your future classroom? Even if you are not teaching math in the future - how can you use this experience to consider something in your future classroom? What have you learned that will help in your classroom even if you never plan to teach this topic? What concepts do you anticipate students will struggle with? How did this problem or this topic help you with problem-solving, motivation, creativity, connections, applications, perseverance, etc?

Uploading and Technical Details

- Type any written explanations or reflections (for accessibility reasons)
- Embed any photos or images of your work (do not attach). Read a tutorial on how!

Discussion Board Post Grading Rubric

Points	Description
8	**Excellent!** Work that is carefully thought out, thorough, and clear. Correctness does not matter!
6-7	**Almost there!** Work that shows effort but is not completely thought out, thorough, or clear. Correctness does not matter!
4-5	**Good effort!** Work that shows little effort. You submitted something, though!
0	**What happened?** No discussion post was submitted, or no serious effort was shown.

Components of the Discussion Board Replies

- Discuss your classmate's strategies, thinking, and/or reflections.
- These are not meant to just encourage but to have a discussion on mathematics and mathematical thinking.

Discussion Board Reply Grading Rubric

Points	Description
2	**Excellent!** Reply engages in mathematics - discussing strategies, thought processes, or content. Reply is respectful, clear, thought out, and thorough.
1	**Good effort!** Reply only encourages classmates and does not discuss mathematics thoroughly. The reply might not be respectful, clear, thought out, or thorough.
0	**What happened?** No reply was submitted, or no serious effort shown.

Teacher Participation

I will not be directly participating in the discussion board. However, I will be grading and providing feedback on your performance in the discussion.

Respectful Classroom Policies (Reminder for the Discussion Boards)

- There will be zero tolerance of explicit language, microaggressions, racist remarks, actions, or behavior in this course.
- Any concerns, questions, or reports of this behavior can be made directly to me or you can report this to any EO Ombudsperson (https://diversity.temple.edu/eoc/report-incident) or the Education contact at (215)204-2394.

Independent Written Assignments (45% of total grade)

Apply your concepts and skills to new scenarios. You must show and/or explain all of your work. Assignments are due by 11:59 pm in Canvas.

Academic Honesty Details for Assignments

There is a temptation to ask a friend for help rather than turn in something that feels imperfect. Please resist this temptation! We can revise for full credit so please do your best independently so we can learn from our mistakes.

You must work alone - no tutor, classmates, teacher assistance, AI, or internet. You may use classroom resources, these include: spreadsheet technology, graphing calculators, notes, and/or textbooks.Please see the *Academic Honesty policy* for details.

AI Policy Reminder for Independent Written Assignments

The use of generative AI tools (such as ChatGPT, DALL-E, etc.) are not permitted in this class; therefore, any use of AI tools for work in this class may be considered a violation of Temple University's Academic Honesty policy and Student Conduct Code, since the work is not your own. Unauthorized AI tools will result in a 0 and possible course failure.

Uploading and Technical Details

Your handwriting must be legible, your problems organized, and your photos clear. All pages must be submitted together as a single .pdf file via Canvas in problem order. Use a free scanner app to upload multiple handwritten pages.

Independent Assignment Grading Rubric

Points	Description
10	**Excellent!** Correct work that is carefully thought out and thorough.
9	**Very Good!** Work that is carefully thought out and thorough, and contains only minor flaws.
8	**Good!** Work that is *mostly* correct and shows competency.
7	**Almost there!** Work that has merit but also has significant gaps in understanding.
6	**Good effort!** Work that shows effort but has serious flaws and significant gaps in understanding.
0	**What happened?** No work was submitted, or any serious effort shown.

Final Assignment Checkpoints

- On each of your independent assignments, there will be a place for you to drop any possible resources or jot down any ideas or outlines for you to remember for the final project.
- These checkpoints will be graded with feedback only (no numerical value) to help me support you in completing your final assignment.

Final Assignment (13%)

This renewable final assignment follows Open Education Resources and is a living document. Your feedback and experience are welcome as I build the framework to have the most impact on current and future students. The reason I have shifted to a renewable final is so the assignment has more impact and value.

Final Assignment Description

For each of the 7 course topics, each student will provide a resource for the Course Resource List or a study support for future students. For each item submitted, you will describe the item, including a link (when appropriate), an explanation of how you used it, and/or how you think a future student could use it.

- Resource: You could submit a resource that might be a helpful source for exploring the topic such as podcasts, videos, blog posts, research, journals, open textbooks, etc.
- Study Support: You could submit a study support, a learning object that you create, which might take the form of:
    - A concept-based example problem (similar to discussion board and chapter assignments). Include an answer key!
    - A skill-based example problem (similar to skill checks). Include an answer key!
    - A flow-chart on how to think through a specific problem.
    - A voice or video recording talking through a course concept, topic, problem, or something else.

Final Assignment Checkpoints

On each of your independent assignments, there will be a place for you to drop any possible resources or jot down any ideas or outlines for you to remember for the final assignment. These checkpoints will be graded with feedback only (no numerical value).

Final Assignment Grading

This assignment will be graded for completeness, whether all requirements were met and if it's clear effort was applied. There will be a possible 28 points - 4 points possible for each of the 7 topics.

- 4 points: Complete, all requirements met, effort was applied.
- 3 points: Mostly complete, met most requirements, effort was applied.
- 2 points: About half is complete, and effort was applied.
- 1 point: Less than half of the requirements were met.
- 0 points: Missing.

Resources you may find helpful

- NCTM journals or open math textbooks
- TU Library Use Tutorials. TU Library Guide: ENG802, TU Library Guide for Misinformation
- Creative Commons Licenses: Read or watch about the options, then use this chooser.

- Some popular math education resources and bloggers include Francis Su, Jo Boaler, Fawn Nguyen, Math = Love, Math For Love, Math Medic, Dan Meyer, Sunil Singh, and many, many, more!

Library Resources

Temple University Libraries provide resources to assist Temple students with their class projects and research needs. Visit the Libraries' website to find millions of articles, books, video, and other resources, both in print and online.

The site also provides tutorials to help you start your research, as well as subject and course research guides to help you identify resources that may be particularly useful for this class.

Contact the library at any stage of the research process. You can chat with a librarian 24/7 or make an appointment with your subject librarian, who can help you explore a topic, craft a research question, and identify and cite sources.

Course Policies 🔑

Extra Credit Policy

Rather than offering extra credit, I offer revisions! Please read more in the Revisions Policy and Procedures to see how you can earn the most on the assignments in the course.

Late Work Policy

Because there is so much content to learn in this course, we must stay on schedule! Consistently turning in late work can result in a feeling of overwhelm and shame. I have structured the Course Schedule and Due Dates to help you manage your time. I want you to be successful and in general, more structure is best for an online course. However, you may have circumstances that require an occasional extension this semester.

- You may submit most assignments up to 3 days late without penalty or by requesting an extension. The only exceptions to this are assignments due after 11/30.
- If you need more than 3 days on an assignment or you've fallen behind in the course, please email me. It is possible that these late assignments will not result in point deduction but we must communicate and create a plan together.
    - Late work submitted more than 3 days late, without communicating with me, may result in a point deduction or zero.
- Due to short grading windows and time restrictions at the end of the semester, no late work can be considered after 11/30. Please email me if you think special circumstances may apply.
- I respect your privacy; you never need to tell me why an assignment is late or will be late, but I do want you to email me to stay accountable and get any support needed.

Please be sure to email me whenever you are concerned about meeting a deadline.

Refer to the Course Schedule and Due Dates to determine the last day late work submissions will be considered.

Revisions Policy and Procedures 🔑

Mistakes happen. Let's learn from them! You can revise or redo any assignment except the last two.

How to revise a Skill Check

You can revise your attempt on any Skill Check at any time throughout the semester, these remain open and you have unlimited attempts. I encourage you to redo these problems to improve your grade and to help you study and prepare for your discussion boards and independent assignments. *You do not need to alert me, these are automatically regraded.*

How to revise a Discussion Board

You can edit your post or replies within the discussion board. If you're not sure how to do this, read this tutorial.

It is important to email me when these are ready to be re-graded, I do not get an alert when these are edited. Be sure to let me know the DB number to re-grade.

How to revise an Independent Assignment

These revisions require you to not only revise your work, but include additional explanations. Read the procedure below:

1. Review the feedback I provided. (Read how to here)
2. Get a new sheet of paper (typed or handwritten) and for each problem you revise, complete the following:
    a. Describe your error or what went wrong when you first attempted it and what you did to learn the content so you could try again.
    b. Complete the problem again. Explain your thinking, include annotations, and all of your work. Circle/box your final answer.

    Note: Do not just copy from any comments I gave you, you should use any hints or feedback to complete the problems on your own. If it appears you are just copying from the internet or my feedback, I cannot award points because that is not your thinking. You may work with others, ask me for help, seek out a tutor, etc. for assistance. Please tell me who you worked with and what you discussed so I can see that you understand and are not just copying.
3. Resubmit this as a single pdf or doc through Canvas. Please be sure your resubmission is a single PDF file and is clear, neat, and organized.

Academic Integrity and Honesty Policy 🔑

Working with others is a great way to learn! However, there is a difference between working with others and academic dishonesty. Furthermore, the chapter and final assignments require you to work alone. The reason is that I want to know what YOU know, even if you are unsure, it is better to submit an incorrect response than to leave it blank or ask a peer for assistance. Remember, you can revise any assignment WITH support - but your first attempt must be independent.

You can work with others on your Skill Checks and Discussion Boards. However, that does not mean you should submit identical discussion boards. Working with another person may mean discussing your ideas and checking each other's work, but coming to your own conclusions and ideas in your own language.

Academic dishonesty includes submitting an assignment that was done by someone else, plagiarism, working on an independent assignment with another student, using technology that is not allowed for assistance etc. "The penalty for academic dishonesty can vary from a reprimand and receiving a failing grade for a particular assignment, to a failing grade in the course, to suspension or expulsion for the University". {Temple Policy quoted from website}.

Temple University believes strongly in academic honesty and integrity. Plagiarism and academic cheating are, therefore, prohibited. All work you submit for assessment should be your own efforts. For more on this topic, consult the relevant portions of Temple Bulletin and the Student Conduct Code.

AI Policy 🔑

The use of generative AI tools (such as ChatGPT, DALL-E, etc.) are not permitted in this class; therefore, any use of AI tools for work in this class may be considered a violation of Temple University's Academic Honesty policy and Student Conduct Code, since the work is not your own. The use of unauthorized AI tools will result in a 0 and possible course failure.

Attendance Policies

We are an asynchronous course, which means we do not have any online or in-person meetings. Attendance means completing work and participating in the course.

I will reach out if I notice that you are not participating by completing the work required each week. Please check your Canvas inbox often as that will be the method I will use to reach out to you about your attendance and performance in this course.

If you notice you are having difficulty completing assignments on time, please email me so that I can support you in catching up.

- *School-Life Conflict*: Many unpredictable things can happen over the course of a semester. If you find yourself struggling to balance your education and your other commitments, please reach out to me immediately so that we can work together to build a plan for your success.

- *Attendance and Your Health:* To achieve course learning goals, students must participate in classes according to the course requirements. However, if you are experiencing a health issue, please contact me to create a plan for participation and engagement in the course as soon as you can do so, and to make a plan to complete all assignments in a timely fashion.
- *Religious Holidays:* It is your right to observe religious holidays without impacting your opportunity to learn and succeed in this course. Please reach out to me so that deadlines can be reviewed in advance of your religious observations.
- *Caregiver Responsibilities:* I have great respect for students who are pursuing their education while responsible for the care of children or other family members. Please contact me if you encounter challenges that require you to miss a class session, or if your caregiving responsibilities are interfering with your success in the course. Together we may be able to find some flexibility to support your learning.

How To Get Help This Semester 🔑

Math and Course Support

If you have any questions on anything in this course - from content to structure to policies - I welcome you to reach out to me at mollykpooler@temple.edu If you want to get help via email or we can schedule a Zoom or phone call to help you feel successful in this course.

If you think working with a tutor would be helpful, you can check out the Student Success Center. They offer both in-person and Zoom tutoring appointments.

Technical Support

I wish I could help with everything but I leave technical issues to professionals. TU Tech Support is great for general technical questions about embedding photos, turning photos into a pdf, etc. Canvas Chat support is great for any Canvas-related questions.

- TU Tech Support
  - Online: TUHelp (http://tuhelp.temple.edu), preferred
  - Email: edhelp@temple.edu
  - Phone: 215-204-6227
- Canvas | Use the left side for the “chat” feature

Whole Person Support

Sometimes the biggest factors impacting student success are things happening beyond the scope of the individual classroom. Temple provides a wide array of resources both to help you overcome academic challenges and those not directly related to the educational challenges of the course. Please reach out to me if you need help deciding which resources might be right for you.

Student Success Center, University Libraries, Undergraduate Research Support, Career Center

Tuttleman Counseling Services, Disability Resources and Services, Student Health Services

If you are experiencing food insecurity or financial struggles, Temple provides resources and support. Notably, the Temple University Cherry Pantry is in operation as well as a variety of resources from the Division of Student Affairs.

Library Resources

Visit the Libraries' website to find millions of articles, books, video, and other resources, both in print and online.

The site also provides tutorials to help you start your research, as well as subject and course research guides to help you identify resources that may be particularly useful for this class.

Contact the library at any stage of the research process. You can chat with a librarian 24/7 or make an appointment with your subject librarian, who can help you explore a topic, craft a research question, and identify and cite sources.

University Policies

Temple and COVID-19

Temple University's motto is Perseverance Conquers, and we will meet the challenges of the COVID pandemic with flexibility and resilience. The university has made plans for multiple eventualities. Working together as a community to deliver a meaningful learning experience is a responsibility we all share: we're in this together so we can be together.

Academic Freedom

Freedom to teach and freedom to learn are inseparable facets of academic freedom. I have the freedom and responsibility to design and facilitate our learning environment to best achieve the promise of the course as outlined in its official description. You have the responsibility to engage with the course in good faith and freedom from mistreatment when your opinion differs from mine. Note that it is not an abuse of this freedom for me to require that you support relevant opinions with clear argumentation and solid evidence. For more on academic freedom, consult the official Temple policy on the matter.

Temple University's Technology Usage Policy

https://its.temple.edu/temple-university-user-agreement-affirmation

Information on unauthorized access, disclosure of passwords, and sharing of accounts

Student Behavioral Expectation and the Conduct Code

The College of Education at Temple University promotes education as a primary mechanism for social mobility and social justice for all learners. Our mission is to prepare all of our students to be ethical and effective professionals who will employ leading-edge understandings and evidence-based practices in whatever setting they work. In order for us to achieve that mission,

we have to have high expectations for our students from the onset of their studies. The Temple University Student Code of Conduct sets forth enforceable rules for conduct, articulates those standards and delineates the process employed when standards are not met. You are expected to become familiar with this document and comply with it. Note that these standards are not exhaustive and you should be aware that your specific program, professional organizations you may join, licensing and/or local, state and/or federal statutory bodies may also set forth additional enforceable rules of conduct.

(1) Temple University Student Conduct Code

- https://studentaffairs.temple.edu/student-conduct-and-community-standards

(2) Pennsylvania's Code of Professional Practice and Conduct for Educators, Chapter 235

- https://www.pacode.com/secure/data/022/chapter235/chap235toc.html
- http://www.pspc.education.pa.gov/Promoting-Ethical-Practices-Resources/Ethics-Toolkit

Withdrawal

If you are considering withdrawing from the course after the add/drop date, please don't make that decision alone! Withdrawing from the course without talking to me first eliminates the possibility of finding a path to success for you. Furthermore, it is extremely important that you consult your academic advisor before withdrawing. They will be able to walk you through how the withdrawal would impact your progress towards your degree and your graduation date.

Please check the academic calendar for the last day to withdraw from a course.

Fall 25 Important Dates

9/8 - Last day to add or drop a full-term 16-week course

12/8 - Last day to withdraw from a full-term 16-week course