

# Tumyaraa Geometry Preparation/Review

## Summer 2024

*Our ancestors are guiding us they are proud of us.*  
—Barbara Amos



Instructors:	
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### Course Description and Goals

Often, rural students are placed into developmental mathematics courses during their first year in college, which do not count toward a degree. We address this problem by intervening early to build students' confidence and competence in Mathematics in college. The course focuses on providing students with positive, personally relevant mathematic experiences. Rather than teaching to student 'deficits, Geometry Preparation/Review aims to help students discover a deeper understanding of math concepts so that they can draw on them in subsequent courses.

This course often focuses on topics already taught in their high school classroom but helps students understand the concepts and how they will be used in higher mathematics and their everyday lives. Having completed the semester, students will see themselves as competent, experienced mathematicians and their cultural identity as a source of academic strength.

Through the course, students will review basic math skills with a focus on those needed to be successful in high school Geometry. Students will explore and develop a deeper understanding of critical topics:

- Fundamentals of Geometry Reasoning/Uncovering All the Angles/Basic of Geometry
- Triangle
- Slope/Linear Equations/Midpoint and Distance
- Pythagorean Theorem
- Polygons

- Quadrilaterals/Parallelograms
- Perimeter, Area & Circles
- Geometric Constructions
- 3D Shapes
- Symmetry and Transformations
- Congruence/Similarity
- Coordinate Proofs

## Readings

- *Understanding Geometry* by Terri Husted
- *Everything You Need to Ace Geometry in One Big Fat Notebook* by Christy Needham

## Schedule

Unit	What We Will Do in Class	Take-Aways	Homework/Activity
1	Fundamentals of Geometry Reasoning/Uncovering All the Angles/Basic of	Define Key Terms and Symbols	Knowing your Community
2	Triangles	Types of Triangles Interior and Exterior Angles Properties of Triangles Triangle	As Assigned Triangulation With a Compass
3	Slope/Linear Equations/ Midpoint and Distance	Slope and Linear Equations Midpoint and Distance Formulas	As Assigned Avalanche Run Out
4	Pythagorean Theorem	Pythagorean Theorem	Building Bridges
5	Polygons	Polygons	Handshake Problem
6	Quadrilaterals/ Parrallograms	Quadrilaterals Parallelograms Trapezoids & Kites Rhombuses, Rectangles, and	Traveling around your community
7	Perimeter, Area & Circles	Circles Understanding Pi Central Angles and Arces Radians Arcs and Cords Inscribed Angles Tangents	Paired Group Presentation of "Solution to..." <a href="#">Cord Of Wood</a> <a href="#">Fiberglassing a Boat</a> <a href="#">Parcel Post Limits</a> <a href="#">Log Cabin Log Count</a> <a href="#">Fur Sewing</a>

Unit	What We Will Do in Class	Take-Aways	Homework/Activity
8	Geometric Constructions	Using mathematic tools, students will learn to construct Geometric Shapes and then apply this skill to real-world problems	Village Math Activities: <a href="#">1906 Native Allotments</a> <a href="#">Sled Runners</a> <a href="#">Beaver Boards</a> Math in Cultural Context: <a href="#">Building a Smoke</a>
9	3D Shapes	Types of 3-D shapes Surface Area Surface Area of Pyramids and Cones Volume of Prisms and Cylinders Spheres - Surface Area and Volume	Euler's Formula Calculating the amount of paint and other building supplies to complete a project.
10	Symmetry and Transformations	Types of Symmetry Types of Transformations Compositions	Looking at Patterns in Everyday Life: Nets, Parkas, Floor Tile
11	Congruence/Similarity	Congruent Similar Triangles Geometric Proof Ratio & Proportion Portions in Triangles	Village Math: <a href="#">Mixing Gas and Oil</a> <a href="#">High School Education</a> <a href="#">Non-Standard Math</a> Math in Cultural Context <a href="#">Kayak Building</a>
12	Coordinate Proofs	Coordinate Triangle Proofs Coordinate Quadrilateral Proofs	As Assigned
13	Trigonometric Ratios	Understanding of Sine, Cosine, Tangent	As Assigned

### Active Learning:

Active learning refers to the process of deep understanding that comes from interactive and reflective education rather than rote memorization and information recall. For this class, active learning involves hands-on using listed skills in a variety of hands-on everyday practices.

### Attendance

To help motivate you and keep things fair to everyone, students must attend the full on-campus intensive and participate in the subsequent online sessions to receive credit.

### Disability Support Services

By the Americans with Disabilities Act of 1990, it is the policy of Alaska Pacific University to make reasonable accommodations for qualified students with disabilities. If a student

with a disability needs reasonable accommodations, the student must notify the Assistant to the Dean of Students in a timely manner. Once the student notifies the Assistant to the Dean of Students, processes and procedures for documenting a disability will be provided to the student upon request. Once the student provides the required documentation to the Assistant to the Dean of Students, the interactive process for developing reasonable accommodations will begin; this process involves the Assistant to the Dean of Students meeting or talking with the student about his or her needs prior to providing the student with a reasonable accommodation approval or denial letter. Students will be notified, in writing, by the Assistant to the Dean of Students when the request for reasonable accommodations is approved or denied. It is the student's responsibility to present the approval letter, documenting the approved reasonable accommodations with respect to the University course, to the faculty member. To receive reasonable accommodations with respect to a University course, a student must follow the process described above. Faculty members are not expected to make reasonable accommodations for students who have not been officially approved for reasonable accommodations by the Assistant to the Dean of Students. The Assistant to the Dean of Students will not discuss reasonable accommodations for any student with a faculty member without prior written consent from that student. For more information, please contact Kaili Martin, Assistant to the Dean of Students (kamartin@alaskapacific.edu; 907-564-8287).

### **Honor Policy**

APU is a community of learners in which all enjoy freedoms and privileges based upon mutual trust and respect as well as a clear sense of responsibility. Students are expected to do all work assigned, to do it honestly and with integrity. We assume your personal integrity and honesty, and that you will adhere to APU's Honor Policy as defined in the Catalog and Student Handbook ([https://www.alaskapacific.edu/wp-content/uploads/2020/08/2020-2021-Student-Handbook\\_final.pdf](https://www.alaskapacific.edu/wp-content/uploads/2020/08/2020-2021-Student-Handbook_final.pdf)). In particular, the use of an AI text generator when assignment instructions do not explicitly allow it or incorporating AI-generated writing without proper attribution puts students at risk under terms of the APU academic integrity policy and its sanctions.

### **If You Need Help**

APU is committed to providing a learning and residential environment that supports the intellectual and personal development, safety, and welfare of all students and employees. Many of resources exist on campus to help you succeed here:

- Academic Support Center (ASC) in the Atwood Center: 564-8280. The purpose of the ASC is to provide Alaska Pacific University students and employees with the tools and resources necessary to promote student success including computer access, printing services, and tutors. Hours of operation are posted before each semester and updated for vacations and holidays. You can also email them at [academicsupportcenter@alaskapacific.edu](mailto:academicsupportcenter@alaskapacific.edu).
- Counseling & Wellness Center in the Atwood Center: 744-4488 and 744-1953. The Counseling and Wellness Center is a place where students can find someone to talk

with. School, relationships, work, family, and daily life concerns, all the way to the most major issues in life are appropriate for counseling. To make an appointment, call, text, or stop by the office. Sessions are arranged with APU graduate students in the Master of Science Counseling Psychology program who are completing their supervised training. The service is free for all APU students. All services offered through the Counseling and Wellness Center are confidential. The Counseling and Wellness Center can also provide referrals to outside resources. The Counseling and Wellness Center organizes educational activities at APU designed to promote campus wellness, including movie nights, speakers, and presentations. Additional resources are listed in the Student Handbook, including:

- Abused Women's Aid in Crises, Inc.: (907) 272-0100
  - Alaska Women's Resource Center: (907) 276-0528
  - Emergency Services V/TTY: (907) 563-3200
  - Standing Together Against Rape (S.T.A.R.) 24-hour Crisis Line: (907) 276-7273
  - Identity Help Line: (907) 258-4777
  - National Suicide Prevention Line: 1-800-273-8255
  - Crisis Text line: Text HELLO to 741-741
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- ANTHC Walk-In Clinic: stop by Advising in Grant Hall for information on medical care provided to APU students.