

# TMATH 344

# Spring Term 2019

UH 1:30-3:30pm JOY 104

Lecturer: Ruth Vanderpool

Office Hours: W 10-noon @ TLC Snoqualmie 2nd floor

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**Course Description:** Covers fundamentals of geometry. Presents an axiomatic treatment of geometry, including Euclidean and non-Euclidean geometry. Describes the role of Euclid's Fifth Postulate in development of non-Euclidean geometries. Develops student's ability to write rigorous proofs.

**Another Description:** Geometry is one of the oldest branches of mathematics, with most traditional topics originating in the work of the ancient Greeks—though significant work was done in other and older societies. We will pursue a deeper and more sophisticated understanding of Euclidean geometry, and explore several alternative and augmented geometries that have been developed. More generally, the techniques developed in this course will aid you in critical thinking, problem solving, and technical communication, in addition to providing an familiar subject to learn modern mathematics.

**Student Learning Objectives:** Upon successful completion students are able to:

1. write rigorous proofs of simple statements in geometry,
2. understand the importance of axiomatic description in this major branch of math,
3. state axioms and basic theorems of Euclidean and non-Euclidean geometries,
4. explain the importance of Euclid's 5th Postulate to non-Euclidean geometry, &
5. describe spherical and hyperbolic geometries.

This supports the Student Learning Objectives in the Math Major by enabling students to:

- comprehend, discover, and communicate common principles of geometry,
- recognize, understand, and also make his/her own mathematical rigorous arguments,
- interpret and present results to a technical audience, both in writing and verbally, and
- modify problems to make them tractable.

**Social Expectations:** You are expected to work regularly with others in this class and thus need to make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

## Useful Items:

- Text: *Origamietry* by D. Heath. ISBN Number: 9789888407156
- Calculators: Either scientific or graphing non-internet accessing calculators are welcome. The application Desmos Test Mode may also run on a smart device if wanted. The following resources exist on campus:

Location	Type/Model	# Available	Duration of Checkout
Library	TI-36X Pro (non-graphing)	39	4 weeks
Library	TI-83 (graphing)	30	1 day
Library	TI-83 (graphing)	61	4 weeks

## Important Dates:

4/23	Exam I	4/7	Last day alter your schedule with no fees
5/14	Exam II	4/21	Last day to add a class
6/11	Final (1:30-3:30pm)	5/19	Last day to change grading option

**Activities:** Activity sheets are used almost every day of class to give you an opportunity to work with the material. *Usually* these will not be collected or marked but the group will be asked to post their work & answer to one of the questions on the board. This will allow the class to see the answer as well as other methods to solving problems. (There is *always* more than one way to find a solution!)

**Exercises:** Exercises will be assigned each day of class, and will be based on the sections in the text discussed. Individuals must turn in their own homework weekly on Tuesdays at the start of class. It is encouraged for students to work together on problems but make sure that you write up your own solution and cite who you worked with! Fifteen minutes at the start of class on Thursday is set aside to provide help or suggestions for the assigned problems. All exercises collected may not be thoroughly reviewed or graded.

**Project:** This project will have you working with 3D digital designs, using a 3D printer to create physical products, and sharing either the experience or details about the object you printed in the public forum SAMURS. Details will be presented later in the course and work is generally due on Thursdays.

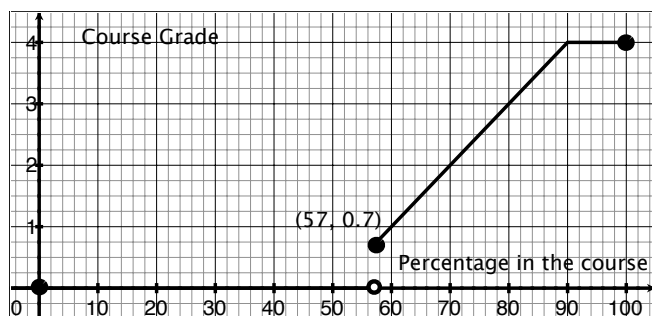
## Outside Resources:

Come visit me in the TLC (Snoqualmie 260) for office hours! If you are unable to make my posted office hours, please let me know and I will try to work with your schedule. Also remember that you are not alone in this class and your peers are a valuable (and often underutilized) resource.

Visit the Teaching & Learning Center (TLC)! Math tutors are available Monday through Thursday from 9am-7pm and Fridays from 9am-3pm. Complete information is available at <http://www.tacoma.uw.edu/teaching-learning-center/teaching-learning-center>.

Grades: The following weights will be used to calculate your percentage in the course. The function graphed takes your course percentage and returns your grade.

Homework	30%
Project HW	15%
Project Poster	15%
Exams (3)	40%



## Notes:

- I do *not* check my email after 4pm. Any questions sent to my email after 4pm may not receive a response until the next morning. The University’s e-mail policy is posted at: <http://www.tacoma.uw.edu/information-technology/uw-tacoma-email-policy>
- To plagiarize is to use the ideas-or unique phrasings-without acknowledging that they come from someplace other than you. At the UW Tacoma, plagiarism is a violation of the student conduct code and the consequences are serious. If you have questions about what amounts to plagiarism, seek guidance from faculty and the TLC.
- Bias Reporting: Report an incident of bias or explore how to effectively respond by visiting <http://www.tacoma.uw.edu/reportbias>.
- UW Tacoma is committed to making physical facilities and instructional programs accessible to students with disabilities. Disability Resources for Students (DRS), located in MAT 354, functions as the focal point for coordination for students with disabilities. If you have a physical, emotional, or mental disability that “substantially limits one or more major life activities [including walking, seeing, hearing, speaking, breathing, learning and working],” and require accommodation in this class, please contact DRS at (253)692-4508, email at [drsugt@uw.edu](mailto:drsugt@uw.edu) or visit <http://www.tacoma.uw.edu/drsugt>.
- The Counseling Center offers short-term, problem-focused counseling to UW Tacoma students who may feel overwhelmed by the responsibilities of college, work, family, and relationships. Counselors are available to help students cope with stresses and personal issues that may interfere with their ability to perform in school. The service is provided confidentially and without additional charge to currently enrolled students. To schedule an appointment, call 253-692-4522 or stop by the Student Counseling Center (SCC), located in MAT 354.
- Campus Safety Information: <http://www.tacoma.uw.edu/campus-safety/home>. Safety escorts are available 24 hours a day, 7 days a week, there is no time limit. Call the main office line at 253-692-4416.
- Inclement Weather: Always check the UW Tacoma Home Page: official campus closures or delays will be announced there first. Course Announcements and Email regarding assignments and expectations during a closure will follow.
- Infants/Children in Class Policy: If you have no choice but to bring a child or children with you to class, please let me know prior to class. You will be responsible for seeing

that the child or children are not disruptive to the class. If you are breastfeeding an infant or expressing milk regularly, you may bring an infant or breast pump to class. If you prefer to breastfeed or breast pump outside of class, you may take time out of class to use the lactation room (GWP 410).

- While I have attempted to make this syllabus as complete as possible, adjustments will be made throughout the course. Announcements will be made during class and it is the responsibility of the student to keep updated if class is missed.