

WinterTerm 2019

Spatial & Geometric Reasoning

UH 10:10-12:10 JOY 105

Lecturer: Ruth Vanderpool

Drop In Hours: W 10:00-11:45am & 2:15-3:30pm

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**Course Description:** This course will develop geometric intuition, problem-solving skills, and the ability to communicate ideas and solutions with elementary mathematics precisely. It emphasizes spatial, geometric, and logical thinking along with the precise formulation of statements rather than mathematical formulae and theorems. No specialized mathematical skills are required.

**Student Learning Objectives:** By the end of the course students will be able to:

1. understand the notion of different geometries and spaces and apply fundamental notations,
2. solve open-ended geometry or topology problems,
3. express geometric ideas to others through precise writing and speech,
4. approach a complex issue by breaking it down into manageable pieces, and
5. collect, evaluate, and analyze information to solve problems or answer questions.

These relate to the UW Tacoma-wide objective: Students will acquire skills and familiarity with modes of inquiry and examination from diverse disciplinary perspectives, enabling them to access, interpret, analyze, quantitatively reason and synthesize information critically.

**Required Items:**

- Text: Edwin Abbott, Flatland
- Text: Jeffrey Weeks, The Shape of Space 2nd ed. CRC Press
- Calculators: You are welcome to use any kind of calculator in this class. However, devices able to access the internet and phones may *not* be used on exams in this class.

**Important Dates:**

2/5	Midterm	1/11	Last day to alter your schedule with no fees
3/21	Final	2/24	Last day to change your grading option

**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.

## Journals:

Journal assignments will be given each class and are expected to be complete by the next session. You are welcome to put additional thoughts and work in the journal, but keep the assignments in order and at the start of each new journal assignment write the date it was assigned. Bring the journals to class everyday so that they can help inform our discussions.

I will regularly collect the journals every Tuesday at the start of class and return them before class ends. The material will never be formally graded, but the entries are marked for completion, contribute to your grade, and will inform the class.

## Homework:

In order to understand mathematics you need to do mathematics! Homework will be assigned everyday and collected regularly. Ten minutes will be set aside at the start of every class to address homework questions. Assignments are due by 10:10am (the start of class) the day they are due. I accept late work up until I start marking an assignment.

The homework will be largely comprised of worksheets write-ups. Given the Student Learning Objectives described above, your work will be largely graded by the *process, explanation*, in addition to the *correctness*. Because of this, you will have to spend more time on each problem than you would on a more traditional, computation-based math course.

## Projects:

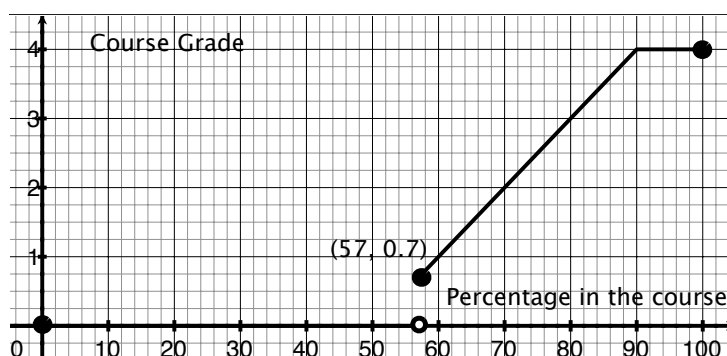
1. One group origami project: Students work in pairs, present, and help the class fold an origami design. The detailed instructions will be handed out in week two but you may want to start searching for a pattern that you find enjoyable and can teach others.
2. One extra material project: Students will work in groups of two or three and select a section from *The Shape of Space* or *Experiencing Geometry* that was not covered in the course. Students design a 30 minute lesson to introduce the material to the rest of the class and turn in a two page discussion/investigation about the topic.

Grades: The following weights will be used to calculate your grade.

Journals	10%
Homework	30%
Projects	30%
Midterm	15%
Final	15%

The above grade assignment is based off the University of Washington, Tacoma's grading

scale posted at <http://www.tacoma.washington.edu/enrollmentservices/grading.cfm>.



## Outside Resources:

Come visit me in the TLC (Snoqualmie 260) for drop in hours! If you are unable to make these, 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>.

## 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>
- 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).
- 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.

- 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.