Spring Term 2016 — Spatial & Geometric Reasoning

UH 12:50-2:55 JOY 105 — SLN 20279/20280
Lecturer: Ruth Vanderpool — Office: MDS 303C
Office Hours: U&H 3:00-4:00pm @ TLC Snoqualmie 2nd floor — Phone: 253-692-4310

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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.

Course Description & Student Learning Objectives:

By the end of the course students should 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 objectives 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
- Text: Carolyn Wheater, *Practice Makes Perfect Geoemetry* ISBN: 978-0-07-163814-2.
- Calculators: Department recommends the use of the TI 36X Pro but the instructor determines the calculator policy for his/her own class.

Important Dates:

4/26	Midterm	4/3	Last day to alter your schedule with no fees
6/?	Final	5/15	Last day to change your grading option

Journals:

You will keep a journal for this class. Journal assignments and questions will be assigned during each class and you are expected to complete the journal work 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. When collected, the *entire* journal must be turned in and not just the newest entries. *The journal must be kept separate from any course notes* in either its own binder or bound book. The material will never be formally graded, but the entries are marked for completion.

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 12:50pm (the start of class) the day they are due. Once I have started marking an assignment, I no longer accept late work.

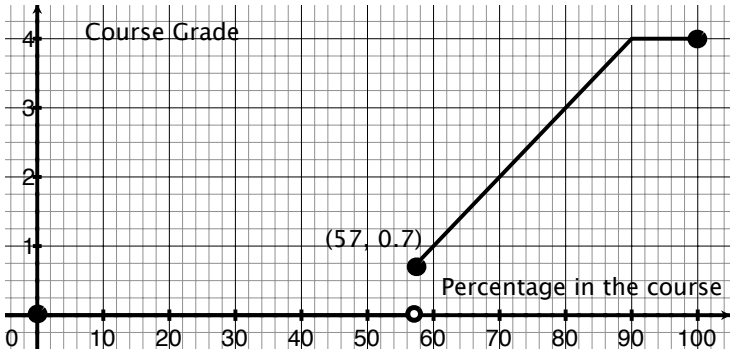
The homework will be largely comprised of worksheets write-ups. Given the Student Learning Objectives described above, your work will be largely graded by the *process*, *explanation*, in addition to the *correctness*. Because of this, you will have to spend more time on your homework than you would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

Projects:

1. One group origami project: Where students work in pairs, present, and help the class fold an origami design. The detailed instructions will be handed out by in week two.
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	25%
Midterm	15%
Final	20%



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 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`.

Notes:

- I do *not* check my email or the discussion boards after 4pm. Any homework questions, discussion board posts, or requests for an extension sent to my email after 4pm may not receive a response until the next morning.
- There will be no tolerance for cheating. All exams and quizzes are to be done individually unless otherwise specified. You are encouraged, however, to work together on the homework & rewrites and to form study groups outside of class.
- The University of Washington Tacoma is committed to making physical facilities and instructional programs accessible to students with disabilities. Disability Support Services (DSS), located in MAT 354, functions as the focal point for coordination of services 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 will require accommodation in this class, please contact DSS at (253) 692-4508, email at dssuwt@uw.edu, uwtshaw@uw.edu or visit www.tacoma.uw.edu/dss for assistance.
- 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 undergraduate and graduate students. To schedule an appointment, please call 253-692-4522, email uwtshaw@uw.edu, or stop by the Student Counseling Center (SCC), located in MAT 354. Additional information can also be found by visiting www.tacoma.uw.edu/counseling.
- Safety Escorts are available 24 hours a day, 7 days a week, there is no time limit. They can be reached either through the duty officer, dialing #300 from a campus phone, or call the main office line at 253-692-4416. Additional safety information and emergency procedures is available at `http://www.tacoma.uw.edu/campus-safety/campus-safety-security`.
- 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.