New math elective class for Fall 2021!

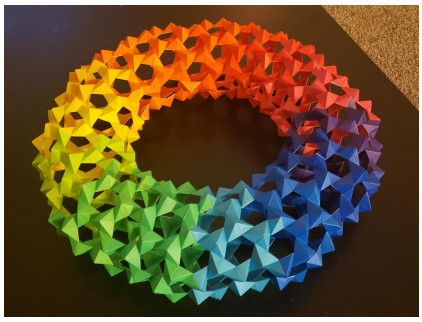
MATH 390 Special Topics: Origami: Math in Creasing

instructor: Thomas Hull

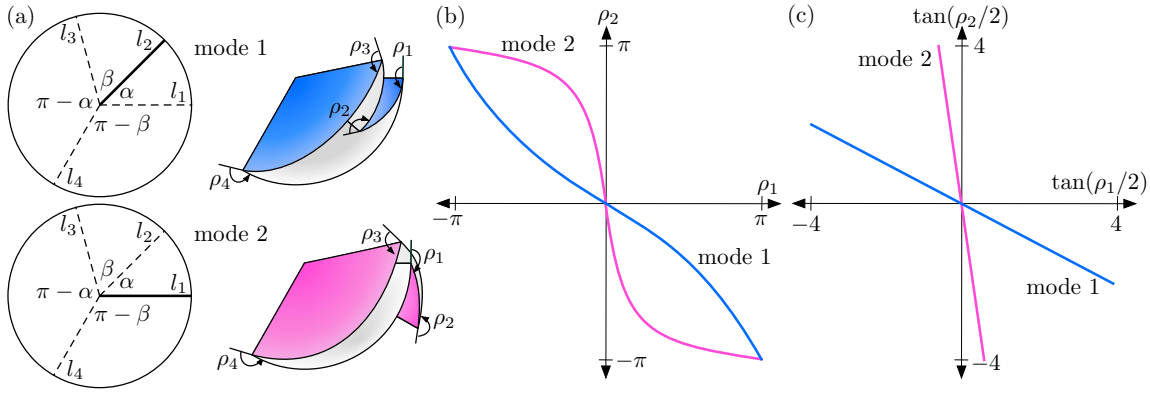
When: Tuesdays and Thursdays, 11:00am - 12:20pm
Prerequisites: MATH 251 or MATH 281, or permission of the instructor

Origami is the art of folding paper, and mathematics is the language best suited to describe how origami works. This course explores a variety of mathematical models that can be used to understand folding processes. Our studies will include geometric constructions, combinatorics, discrete geometry, linear algebra, and calculus. Explorations will be made into these models by physically making origami art as well as via computer simulations. Applications of origami to physics, engineering, architecture, robotics, and education will be discussed throughout the course.

Some of what we will study:



- Modular origami and the math behind polyhedra, Buckyballs, and geodesic domes.
- How math is used to design origami birds, animals, insects, and more.
- The Miura-ori (aka Miura map fold) and why engineers get excited about how this model folds and unfolds so easily (and how origami like this is being used to put large solar panels into outer space).
- How to trisect an angle, which the classic Greek geometry tools straightedge and compass cannot do, but origami can!



Questions? Want more information? Contact Thomas Hull: thull@wne.edu