Hyperbolic geometry (Math 145), Spring 2001
Millikan 211, MW 1:15–2:30

Instructor: Tim Hsu (pronounced "shoe"). Please call me Tim.

Office and phone: Millikan 223, x1-8716.

Office hours: Mon 11am–noon, Tue 1:30–2:30pm, Wed 11am–noon, Wed 2:30–3:30pm, or by appointment. (These times may change; check my office door or the website for current times.)

E-mail: `timhsu@pccs.cs.pomona.edu` or `thsu@pomona.edu`. If there are problems with those addresses, try `timhsu@earthlink.net`.

Course web page: `http://www.cs.pomona.edu/timhsu/courses/145/`. This page will always contain a list of all homework and reading assigned to date, as well as downloadable versions of the homework.

Required text: S. Stahl, *The Poincaré Half-Plane*. Supplementary class notes will also be handed out in class.

Homework: Weekly problem sets will be assigned. You may discuss the homework with others in the class; however, all writeups must be done separately.

Exams: There will be two midterm exams, which will probably be take-home exams. There will be no final exam; instead, we will have a final project of some kind, which will be due either on **Wed May 02**, for seniors, or on **Sat May 12**, for everyone else.

Grading: Your final course grade consists of:

Homework:	30%
Exam I:	20%
Exam II:	20%
Final project:	30%

Syllabus:

All chapter numbers are from Stahl. Notes will be handed out as necessary.

Topic	**Reading**
The Euclidean and hyperbolic planes	
Isometries of the Euclidean plane	Ch. 2, notes
The hyperbolic plane	Ch. 3–4, notes
Hyperbolic isometries	Ch. 4–5
Exam I (take-home?)	
Structure of isometries	
Hyperbolic triangles and area	Ch. 6–8
Conjugacy	Notes
Conjugacy of Euclidean isometries	Notes
Complex numbers	Notes
Hyperbolic isometries and complex numbers	Ch. 9
Conjugacy of hyperbolic isometries	Notes
Exam II (take-home?)	
Surfaces	
Basics of surfaces	Notes
Surfaces from patterns	Notes
The Euler characteristic	Notes
The classification of surfaces	Notes
The Gauss-Bonnet theorem	Notes
Final project	