University of Utah
Math 5520, Spring 2009

Possible topics for a junior research project

- Vector fields on surfaces and the Euler characteristic.

- Curvature of surfaces

- Reflection groups, triangle groups

- Fuchsian groups

- Möbius transformations in $\mathbb{R}^n$ and higher dimensional hyperbolic space

- Circle packings, sphere packings

- Gluing surfaces/curvature

- Knots: ...

- Braid groups

- 3-dimensional manifolds: ...

- Fractals: ...

- Graphs: ...

- Map-coloring problems

- Polyhedra in higher dimensions

- Non-convex regular polyhedra