

MA430 Differential Geometry Coming in Spring 2012

Instructor: Lia Vas, Ph.D.

Office: STC 244 E-mail: l.vas@uscience.edu

Had fun with double and triple integrals and still in the mood for some more?

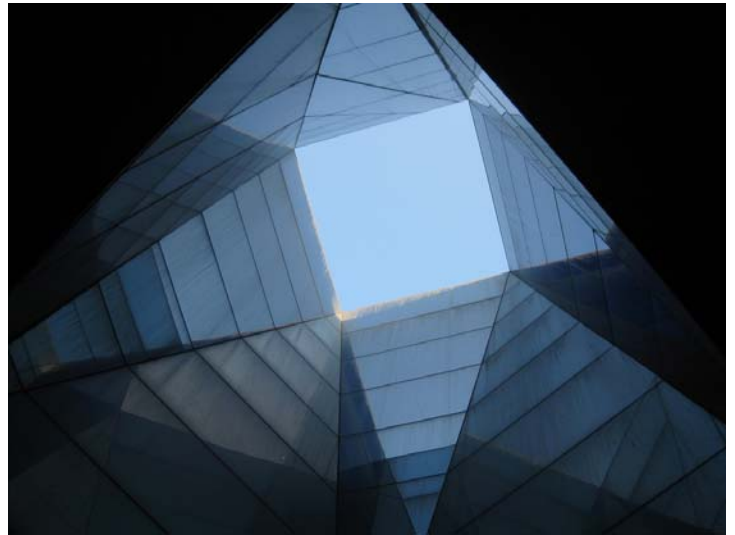
Want to get more mathematical background needed for better understanding of physics (e.g. Electricity and Magnetism, Fluid Dynamics, Quantum Mechanics) or computational chemistry?

The course will start with a review of three dimensional objects (surfaces and space curves) and multiple and line integrals covered in MA202 (or any Calculus 3 course) and will cover the following topics:

- Curves in space, curvature, torsion
- Surfaces in space, coordinate patches, Gaussian curvature, Theorema Egregium
- Surface integrals
- Stokes' and Divergence Theorems
- Manifolds
- Curvature of a smooth manifold
- Applications.

Prerequisite: Mathematical Analysis IV (MA202) or any Calculus 3 equivalence.

Attention Mathematics Minors: MA490 can be used as an elective for the minor.



Cell complex in Barcelona



Smooth manifold in Chicago



Interior of a topological space in Tokyo