

DIFFERENTIAL GEOMETRY

MATH-341

Textbook: *Elementary Differential Geometry*, Revised 2-nd Edition
by Barrett O'Neill (Academic Press)
Chapters 1,2,3,4,5,6,7 will be covered

Instructor: Dr. O. Bogoyavlenskij

Assignments: Due each Thursday at 4-20 p.m., room 115, Jeffery Hall

Mid-term test: Monday, **October 20**, 2-30 - 3-20 p.m. at room 115, Jeffery Hall

Final examination: December, 2008

Evaluation: Final examination 50%
Mid-term test 30%
Assignments 20%

Office hour: *Monday, 3-30 - 4-30 p.m.* Rm. 515, Jeffery Hall

Outline:

- Tangent vectors, directional derivatives
- Differential forms
- Frenet's formulas, Congruence of curves
- Surfaces in R^3 , Mappings of surfaces
- Topological properties of surfaces
- Differentiable manifolds
- Gaussian and mean curvature
- Intrinsic geometry of surfaces in R^3
- Covariant derivative
- Gauss - Bonnet Theorem
- Surfaces of constant curvature