

DEPARTMENT OF MATHEMATICS

ORAL EXAMINATION

Minor area: DIFFERENTIAL GEOMETRY

Topics:

Curves in \mathbf{R}^2 and \mathbf{R}^3
Clairaut Theorem
Gauss-Bonnet
Hilbert's Theorem ($K = -1$)
Liebman's Theorem ($K = 1$)
Flat surfaces ($K = 0$)
Curvature
Geodesics
Jacobi fields
Gauss Lemma
Hopf-Rinow
Spaces of constant K
First & Second variation
Bonnet Meyers
Hadamard
Conjugate points

All of these topics for surfaces as in DoCarmo Curves & Surfaces