1) Multidimensional differential calculus. In particular, differentiability and Jacobian of maps, the implicit function theorem and extremum problems (Lagrange multipliers).
2) Curves in Euclidean spaces. Definition of the curvature of curves, line integrals and conservative vectorfields. Homotopy of curves and simply-connected domains.

3) Surfaces in three-dimensional Euclidean space. The first and second forms. The Gauss map, and the curvature of surfaces. Gauss's Theorema Egregium, and the concept of intrinsic quantities of a surface.
4) Riemann multidimensional integration: definition by partitions, Fubini's theorem and the change of coordinates formula.

5) Vector analysis in three-dimensional space: Integration on surfaces. Stokes' theorem, the (Gauss) divergence theorem..