Infinitesimal Calculus 3

Prof. Uri Onn

Fall 2017

- Basic concepts of topology of metric spaces: open and closed sets, connectedness, compactness, completeness.
- Normed spaces and inner product spaces. All norms on $\mathbb{R}^n$ are equivalent.
- Theorem on existence of a unique fixed point for a contraction mapping on a complete metric space.
- Differentiability of a map between Euclidean spaces. Partial derivatives. Gradient. Chain rule. Multivariable Taylor expansion.
- Open mapping theorem and implicit function theorem. Lagrange multipliers. Maxima and minima problems.
- Riemann integral. Subsets of zero measure and the Lebesgue integrability criterion. Jordan content.
- Fubini theorem. Jacobian and the change of variables formula.
- Path integrals. Closed and exact forms. Green's theorem.
- Time permitting, surface integrals, Stokes's theorem, Gauss' theorem

יום ד 11:00 - 13:00 בגוטמן [32] חדר 114
יום א 09:00 - 11:00 בגוטמן [32] חדר 114
יום ב 13:00 - 14:00 בגוטמן [32] חדר 206