

MATH 602 Selected Topics in Analysis II
(Introduction to Several Complex Variables)

- Analytic functions of one complex variable (in the frame of Chapter 1 in [1]).
- Elementary properties of analytic functions of several complex variables: Cauchy formula for polydiscs and its consequences, $\bar{\partial}$ - problem for a polydisc, power series and Reinhardt's domains, domains of holomorphy
- Rings of holomorphic functions and $\bar{\partial}$ -cohomology
- Pseudoconvexity and plurisubharmonicity
- L^2 -estimates and existence theorems for the $\bar{\partial}$ -operator in \mathbb{C}^n
- Stein manifolds
- L^2 -estimates and existence theorems on Stein manifolds
- Envelopes of holomorphy of domains on Stein manifolds
- Embeddings of Stein manifolds
- Cousin's problems on Stein manifolds

Recommended books:

1. L. Hörmander, *An Introduction to Complex Analysis in Several Complex Variables*, North-Holland Mathematical Library, 3rd ed., 1990.
2. T. Ohsawa, *Analysis of Several Complex Variables*, Translations of Mathematical Monographs, AMS **211**, 2002.