

Mathematics Department

Approximation Theory 201022

Lecture and Tutorial (2+2 hours): Dr. Aviv Gibali

Reception hours: Appointment via: avivg@braude.ac.il

Prerequisites: Calculus 1+2, Numerical analysis, Partial differential equations

Abstract and topics: During this course, we will sketch some basic aspects of approximation theory. Topics as approximation on normed vector spaces, approximation by polynomials, Weierstrass approximation theorems, Chebyshev Approximation, interpolation and iterative methods are treated. All topics will include implementation in Chebfun which is an open code supported in Matlab.

Textbooks:

1. W. Cheney and L. Will, *A course in approximation theory*, Reprint of the 2000 original. Graduate Studies in Mathematics, 101. American Mathematical Society, Providence, RI, 2009.
2. V. K. Dzyadyk and I. A. Shevchuk, *Theory of uniform approximation of functions by polynomials*. Walter de Gruyter GmbH & Co. KG, 10785 Berlin, Germany 2008.
3. L. N. Trefethen, *Approximation Theory and Approximation Practice*, SIAM 2013.

Grading: 100% determined based on a final project/seminar which includes theory and application.

Course Webpage: <https://moodle.braude.ac.il/>

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