The Department of Mathematics
2020–21–A term

Course Name  Workshop in Analysis
Course Number  201.1.1071

Course web page

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Office Hours  https://www.math.bgu.ac.il/en/teaching/hours

Abstract

The goal of the workshop is to examine and provide complimentary material for the course “Geometric Calculus 1” 201.1.1031 (as well as the course “Introduction to Analysis” 201.1.1051). The workshop is given in parallel with Geometric Calculus 1, and the workshop content follows the courses. Part of the main goals of the workshop, especially due to the Corona pandemic, is to improve the student’s teamwork skills. During the workshop, the students will work in small groups and will practice their “mathematical conversation” skills: how to think together, how to find the essence of an idea and how to present a mathematical idea to others.

Requirements and grading

הקורס כולל מפגשים בהם נדרשת, השתתפות אקטיבית של הסטודנטים. אין מבחן סופי בקורס ואין חובה להגישתרגילים. ציון הקורס נקבע על פי פינוכחות והשתתפות בשיעור. המ.mongodbים על קבוצות קטנות (בלילוי נהוגת השにする). עלȘאולות ה тогдаון לומדים התקנון בקורס אחר

1. הקבוצות מופפות על פתרון ל.toDouble או לועiquer.

שאול הקבוצות.

1Information may change during the first two weeks of the term. Please consult the webpage for updates
Course topics

This course is meant to discuss problems and provide examples in the following topics. Close coordination with the parallel course *Geometric Calculus* is recommended.

1. Topology of $\mathbb{R}^n$: open, closed, compact and connected sets.
2. Continuity and differentiability of functions from $\mathbb{R}^m$ to $\mathbb{R}^n$, including the basic geometric properties of directional derivatives and the gradient. Curves in $\mathbb{R}^n$.
3. Implicit and inverse function theorems
4. Taylor’s theorem for multivariable functions and the Hessian
5. Extrema for multivariable functions, with and without constraints
6. Fubini’s theorem and the change of variables formula