

# Combinatorial Methods Syllabus (PPKE)

- *Instructor:*

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- *Textbook:*

Zsolt Tuza, Csilla Bujtás, Máté Hegyháti: Combinatorial Methods and Algorithms

- *Classes:*

class: Tuesday 8:30-10:00

office hour: before and after classes, or by appointment, or online

- *Midterm:* April 4, Tuesday 8:30-10:00

*Final:* May 23, Tuesday 8:30-10:00

- *Tests:*

**Midterm:** 8 problems, one page of hand-written notes are allowed to use, 90 minutes, in class

**Final:** 8 problems, one page of hand-written notes are allowed to use, 90 minutes, in class (not cumulative)

- *Grading:*

Based on the results of the Midterm and the Final, a final grade will be offered.

5 - 85+%

4 - 70+%

3 - 55+%

2 - 40+%

Oral exam (with theoretic proofs) may improve this grade.

- **Topics to be covered:**

Interval systems; Graph coloring, sequential algorithms; Classes of perfect graphs; Maximum and stable matchings in bipartite graphs; List coloring, kernel method; Large cuts in graphs; Greedy algorithm; probabilistic method; Dynamic programming algorithms; Balanced incomplete block designs, finite geometries; Extremal problems; forwarding index; Factorization, decomposition.