Tárgytematika / Course Description
Mathematics 3

GKNB_MSTA011

Tárgyfelelős neve /
Teacher's name: dr. Környei László
Beszámolási forma /   **Félév / Semester:**   2024/25/1
Assesment: Vizsga
Tárgy heti óraszáma /   **Tárgy féléves óraszáma /**
Teaching hours(week): 2/2/0   **Teaching hours(sem.):**   0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

In the first 5 weeks of the semester, the students learn some computational methods which are important in practice. In the remaining part of the semester, the basic concepts of the probability theory and mathematical statistics are outlined.

TANTÁRGY TARTALMA / DESCRIPTION

Week 1: Linear system of equations, matrix decompositions.

Week 2: The method of least squares.

Week 3: Interpolation.

Week 4: Approximation of integrals.

Week 5: Approximation of derivatives.

Week 6: Statistical population, histograms, statistical measures. The relationship of the statistical measures and the shape of the histogram in some simple cases.

Week 7: The concept of the probability, its determination. The concept of random variables. Relationship with the statistical measures.

Week 8: Some special discrete distributions (binomial, geometric, Poisson distributions).

Week 9: Some special continuous distributions (exponential, normal distributions).

Week 10: The sum and the average of random variables.

Week 11: Statistical hypothesis testing. Parametric and non-parametric statistical tests. One-sample and two-sample u-test.

Week 12: Statistical hypothesis testing. One-sample and two-sample t-test. The chi-square test (for goodness of fit and for independence).

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

The students should write two classroom tests (in the 6. and 12. weeks of the term-time) and should reach at least a result of 50%. At most one of the tests can be shifted to the 13. week of the term-time. If the minimal result is not reached, one trial is allowed to perform a correction in the last (14.) week of the term-time.

The exam is a written exam, the duration is 90 minutes. The relationship between the ratio of the achieved and the maximal points (in percent) and the grades is as follows:

less than 50%: unsatisfactory (1)

equal to or greater than 50%, but less than 62.5%: satisfactory (2)

equal to or greater than 62.5%, but less than 75%: average (3)

equal to or greater than 75%, but less than 87.5%: good(4)

equal to or greater than 87.5%: excellent (5)

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Course material is available online.

AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL