| **1. Course title:** Geomathematics and Geostatistics | | | | |
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| **2. Code:** | | **3. Type (lecture, seminar, laboratory):** seminar | | |
| **4. Total of contact hours:** 39 hours | | **5. Number of credits (ECTS):** 4 | | |
| **6. Pre-requisites (max. 3):** none | | | | |
| **7. Announced:** ☒ autumn semester, ☐ spring semester, ☐ both semesters | | | | |
| **8. Limit for participants:** 24 /group | | | | |
| **10. Instructor-in-charge (faculty, institute and department):**  István GERESDI, PhD (FS, Institute of Geography, Department of Geology and Meteorology) | | | | |
| **11. Instructor(s) and percentage:** | | István GERESDI | | 10% |
| Noémi SARKADI | | 30% |
| Levente B. ALPEK | | 30% |
| Gabriella SCHMELLER | | 30% |
| **12. Language:** English | | | | |
| **13. Course objectives and learning outcomes:**  Aims:  1. To provide an understanding and knowledge of basic mathematical and statistical methods  2. To provide a routine in the solution of the simpler mathematical and statistical problem related to the earth sciences  Knowledge:  On successful completion of this course students are able to apply basics mathematical and statistical tools*.*  Subject-specific skills:  *On successful completion of the course students are expected to be able to solve simpler mathematical problems and accomplish statistical analysis at basics level.* | | | | |
| **14. Course outline / Milestones**   1. Sets, types of number sets 2. Powers, roots, logarithm laws 3. Solving linear and quadratic equations and inequalities (I). 4. Solving linear and quadratic equations and inequalities (II.) and definition of functions 5. Trigonometry, application of trigonometry in earth science 6. Geometry in 2D and 3D, spherical geometry, Pythagoras law. 7. 1st midterm exam 8. Coordinate geometry 9. Basics of logics, combinatorics probability theory 10. Most frequently applied probability distributions – Bernoulli, uniform, binomial, Poisson, geometrical, normal 11. Mean, weighted mean, standard deviation, median, mode 12. Plotting of empirical cumulative density function and empirical distribution (histogram) 13. 2nd midterm exam | | | | |
| **15. Mid-semester works**  Week 1: I. midterm exam  week 2: II. midterm exam | | | | |
| **16. Summative assessment, formative assessment**  Evaluation is based on homework points, one midterm exam on week 7 and one final written exam at the end of the semester. Exams: both theory and calculations. Calculator and equation card (prepared individually by the students) are required. The approximate ranges are the followings:  just less than  less than 50% = 1  50 to 59.99 % = 2  60 to 74.99% = 3  75 to 84.99% = 4  85+% = 5  Attendance at all activities will be monitored. Students who fail to attend the activities, or to complete the summative or formative assessment specified above, will not gain the credit for the course.  Correction of the midterm | | | | |
| **17. Reading assignments:**   1. Palmer: Essential Maths for Geoscience, WILEY, p 204 | | | | |
| **18. Recommended texts:** | | | | |
| **Date** | 13 November, 2017 | **Prepared** |  | |
| István GERESDI PhD  instructor-in-charge | |
| **Endorsed** | | |  | |
| András TRÓCSÁNYI PhD leader of the program | |