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| **1. Course title:** Differential Equations | | | | | |
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| **2. Code:** | | **3. Type (lecture, practice etc.):** seminar | | | |
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| **4. Contact hours: 2** hoursper week | | **5. Number of credits (ECTS):** 2 | | | |
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| **6. Preliminary conditions (max. 3):** | | | | | |
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| **7. Announced:** ☐ fall semester, ☒ spring semester, ☐ both | | | | | |
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| **8. Limit for participants:** 150 | | | | | |
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| **10. Responsible teacher (faculty, institute and department):**  Tímea Eisner PhD (Faculty of Science, Institute of Mathematics and Informatics, Department of Mathematics) | | | | | |
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| **11. Teacher(s) and percentage:** | | Tímea Eisner, PhD | | 100 % | |
| Margit Pap, PhD, dr. Habil | | 100% | |
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| **12. Language:** English | | | | | |
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| **13. Course objectives and/or learning outcomes:**  **Objectives:** The lecture intends to introduce students to the world of differential equations. Learn to recognize and classify various types of ordinary differential equations. Get used to thinking about and working with functions as “variables”. Understand the qualitative nature of solutions to certain classes of differential equations, with emphasis on exponential growth, oscillations, and equilibrium solutions. Learn to solve certain types of elementary differential equations analytically, with an emphasis on first order differential equations and higher order linear differential equations.  **Learning outcomes:** students completing the course will have familiarity with questions and methods related to problems involving differential equations. | | | | | |
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| **14. Course outline**   1. Introduction to Differential Equations; 2. First-Order Equations: Separable Differential Equations 3. First-Order Equations: Linear Equations 4. First-Order Equations: Bernoulli-, Lagrange- and Clairaut - Equation 5. Exact Equations. 6. 1st midterm 7. Second Order Equations; 8. Higher Order Linear Equations with constant coefficient; Euler Equations 9. Systems of Differential Equations; 10. Laplace Transforms; 11. Higher Order Linear Equations 12. Partial Differential Equations 13. 2nd midterm | | | | | |
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| **15. Mid-semester works**  Attending lectures is highly recommended. | | | | | |
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| **16. Course requirements and grading**  the two tests contribute 50-50% toward the final grade:   1. 41% – acceptable 2. 55% – average 3. 68% – good 4. 84% – excellent   Make up tests: at the end of the semester.  Failed tests must be repeated. | | | | | |
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| **17. List of readings** | | | | | |
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| **18. Recommended texts, further readings** | | | | | |
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| **Date** | 4 May, 2017 | **Prepared by** |  | | |
| Tímea Eisner, PhD  responsible teacher | | |
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| **Endorsed by** | | |  | | |
| László Tóth, PhD, Dr. Habil program supervisor | | |