

# Program for the Exam on Calculus

Spring Semester 2020–2021

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## Course curriculum:

1. **Primitives.** The Differential of a Function. The Primitive and the Indefinite Integral. The Basic General Methods of Finding a Primitive. Primitives of Rational Functions. Primitives of the Form  $R(\cos x, \sin x)dx$ . Primitives of the Form  $R(x, y(x))dx$ .
2. **Integration.** Definition of the Integral and Description of the Set of Integrable Functions. Linearity, Additivity and Monotonicity of the Integral. The Integral and the Derivative. Applications of Integration. Improper Integrals.
3. **Series.** Elementary Facts About Series. Pointwise and Uniform Convergence. Uniform Convergence of Series of Functions. Functional Properties of a Limit Function. Power Series Representation of a Function.
4. **Fourier Series.** Basic General Concepts Connected with Fourier Series. Trigonometric Fourier Series.