

# Negative curvature and complex analysis

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In this course we begin by introducing a few of the metrics that are used in complex analysis and potential theory, including the Poincaré, Carathéodory, Harnack, Hilbert, and quasihyperbolic metrics. An important feature of these metrics is that they are quite often negatively curved. We discuss what this means and when it occurs, and proceed to investigate negative curvature, beginning with constant negative curvature (e.g. the unit disk with the Poincaré metric) and moving on to  $CAT(k)$  and Gromov hyperbolic spaces. We pay special attention to notions of the boundary at infinity.