

LINES OF CURVATURE AND ASYMPTOTIC LINES OF SURFACES

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ABSTRACT. Each surface lying in the 3-dimensional Euclidean space has two sets of foliations, possibly with singularities, defined by the geometry inherited by the surface from the ambient space, that is, its extrinsic geometry. These foliations are called the asymptotic and curvature lines of the surface. Their study has appealed to the interest of many mathematicians since the nineteenth century. They represent a spot where geometry, topology, and the theory of differential equations converge and include famous conjectures that remain open nowadays. The course aims to present an accessible approach for non-specialists in the subject, emphasizing geometrical ideas.