

## SUMMER RESEARCH PROJECT

# Minimal Surfaces

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Students will investigate problems concerning minimal surfaces and will explore properties of certain families of minimal surfaces using computer simulations. Students will be introduced to the minimal surface equations through the calculus of variations and will investigate various applications and occurrences of minimal surfaces in nature. Using Isothermal parametrizations, students will learn of the connections between minimal surfaces and harmonic maps as well as a connection to complex analysis through the relations between minimal surfaces and their Enneper-Weierstrass representations. If time permits students may apply their knowledge to explore related questions in higher dimensions and in other space forms. It is preferred that students have backgrounds in differential geometry and complex analysis.