1167-05-142 **Stephen Huggett\*** (`s.huggett@plymouth.ac.uk`). *Types of embedded graphs, and their Tutte polynomials.*

We take an elementary and systematic approach to the problem of extending the Tutte polynomial to the setting of embedded graphs. Four notions of embedded graphs arise naturally when considering deletion and contraction operations on graphs on surfaces. We give a description of each class in terms of coloured ribbon graphs. We then identify a universal deletion-contraction invariant (that is, a Tutte polynomial) for each class. This is joint work with Iain Moffatt. (Received March 04, 2021)