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Persistence modules and zigzag modules are basic objects of study in topological data analysis. In this work, we generalize and unify these concepts in the framework of correspondence modules, which use partial linear relations between vector spaces as a replacement for linear maps. We prove a decomposition theorem for correspondence modules that leads to barcode representations of such modules. This allows us to formulate persistent homology in more general settings and analyze data using barcodes or persistence diagrams containing richer information. (Received September 15, 2019)