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We characterize those sequences of weighted isobaric polynomials which belong to the kernel of the linear operator

$$D_{1,1} - \sum_{j=1}^k t_j D_{2,j} - mD_2, m \in \mathbb{N};$$

and we characterize those linear operators of this form in terms of the coefficients a_j which have a non-zero kernel. The main result is that the sequence of Generalized Lucas Polynomials is a solution for $m = 1$ and the sequence of Generalized Fibonacci Polynomials is a solution when $m = 2$. (Received September 19, 2010)