The problem of optimal high-frequency noise suppression and low-frequency signal transmission in sampled sensor systems is considered in this paper. Low-delay digital filters with linear phase and unity magnitude at the dc limit (i.e., maximally flat) are of particular interest. Savitzky-Golay smoothers with an infinite impulse response (IIR) are introduced and their properties are explored. The filter coefficients are derived via regression analysis using orthogonal Laguerre polynomials in the time domain. A generalized form with a shape parameter included in the error-weighting function is proposed. This extension may be used to further reduce the white noise gain of the filter. A design process that determines the optimal position of the repeated real poles, either to minimize the white noise gain, or to maximize the high-frequency attenuation, for a specified low-frequency group delay, is discussed. An alternative process for the design of a generic class of maximally flat repeated-pole filters is also presented. This allows colored noise to be handled and/or additional frequency-domain constraints, such as Nyquist flatness, to be applied.