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We consider the equation $-u'' + (q - zw)u = 0$ on the real line, where q is an a -periodic distribution, w is an a -periodic locally integrable function, and z the spectral parameter. We introduce Floquet Theory for this equation and we show a lot of interesting properties of the discriminant of this equation. Finally we show selfadjointness and existence of the spectrum with respect to periodic, semi periodic, and separated boundary conditions. (Received January 12, 2016)