We consider rate-optimal scheduling of multicasts in wireless coded packet networks under a probabilistic interference model, in which packets are successfully received if the instantaneous signal-to-interference-plus-noise ratio exceeds a threshold. This is in contrast to previous works on network coding, where interference has been handled in an all-or-nothing fashion by a collision model, and separately from channel fading. Our work is based on a formulation of the link rates that uses broadcast functions, because this allows for a significant complexity reduction by leveraging the problem's polymatroid structure. We show that there exists an optimal schedule whose length is limited by the number of nodes times the number of terminals of the multicast. We then present a greedy formulation of the scheduling problem and show how it can be solved efficiently in combination with convex optimization algorithms. The new approach is tested numerically against other methods on networks with independent Rayleigh fading channels and it finds better schedules in less time.