1079-17-149 **Brian D Boe*** (brian@math.uga.edu), Department of Mathematics, University of Georgia, Athens, GA 30602, **Jonathan R Kujawa**, Department of Mathematics, University of Oklahoma, Norman, OK 73019, and **Daniel K Nakano**, Department of Mathematics, University of Georgia, Athens, GA 30602. *Complexity for modules over the classical Lie superalgebra* $\mathfrak{gl}(m|n)$.

Let $\mathfrak{g} = \mathfrak{g}_{\bar{0}} \oplus \mathfrak{g}_{\bar{1}}$ be a classical Lie superalgebra and $\mathcal{F}$ be the category of finite dimensional $\mathfrak{g}$-supermodules which are completely reducible over the reductive Lie algebra $\mathfrak{g}_{\bar{0}}$. In a previous paper, the authors demonstrated that for any module $M$ in $\mathcal{F}$ the rate of growth of the minimal projective resolution (i.e., the complexity of $M$) is bounded by the dimension of $\mathfrak{g}_{\bar{1}}$. In this paper we compute the complexity of the simple modules and the Kac modules for the Lie superalgebra $\mathfrak{gl}(m|n)$. In both cases we show that the complexity is related to the atypicality of the block containing the module. (Received January 09, 2012)