Reverse mathematics is an ongoing research program in foundations of mathematics, initiated by H. Friedman and most notably advanced by S. Simpson. Around 1990, X. Yu and others ingeniously developed the basics of measure theory in weak subsystems of second order arithmetic. Following their formulation, we investigate some important theorems of probability theory such as versions of the law of large numbers in the reverse-mathematical way. We also compare them with the corresponding results based on nonstandard measure theory.

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