ON THE SEQUENCES WHOSE CONDITIONAL EXPECTATIONS CAN APPROXIMATE ANY RANDOM VARIABLE

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Abstract: Let $(\Omega, \mathcal{F}, P)$ be a non-atomic probability space. For a given sequence $(X_n)$ of random variables we indicate a number of conditions which imply that for any random variable $Y$ there exists a sequence $(\mathcal{U}_n)$ of $\sigma$-fields satisfying $E(X_n|\mathcal{U}_n) \to Y$ a.s. In particular, we formulate a sufficient condition using the distributions of $X_n$'s only.

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