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Cryptography (the design and use of message concealment methods) and cryptanalysis (the activity of recovering information concealed by such methods) have underpinnings and connections in such mathematical areas as number theory, probability, statistics, Boolean algebra, and complexity theory; they have interesting history and current-day relevance. An introductory-level course in this subject can be stimulating for students and provide a context in which to introduce to them these mathematical areas. In this talk, we briefly describe such a course that has been offered for a number of years and focus on a few specific topics that illustrate how mathematical ideas connect with both classical and current-day computer-based cryptology. (Received September 15, 2000)