1154-D1-42 **Jason Lee*** (jason.lee@montgomerycollege.edu). *Counting Problems with Python.*

A standard combinatorics problem in a Discrete Math class is a so-called "stars and bars" problem. For example, "How many ways are there to distribute 7 indistinguishable candies to 4 distinguishable kids?" The students learn that the answer is $\binom{7+4-1}{4} = \binom{10}{4} = 210$. Although sometimes it is difficult for students to really understand this solution, it's possible to make this answer completely transparent by concretely enumerating all 210 ways. On paper, this is tedious to do, but the built-in Python package itertools can do this easily. Itertools is useful for making combinatorics questions and answers more concrete, and for allowing us to easily loop through combinatorial structures. This talk will show how to apply itertools to this and other combinatorics problems. (Received July 15, 2019)