1116-00-1373   **Sharif Ibrahim*** (`jmm2016@sharifibrahim.com`). *Joint Mathematics: Lessons from a Marijuana License Lottery.*

How do you distribute a limited number of licenses fairly? Washington state faced this question after voters legalized recreational marijuana and decided to assign retail licenses in a lottery. This lottery was performed by the Social & Economic Sciences Research Center at Washington State University with extensive help from the math department. How can you be sure (and, importantly, make others sure) that a lottery is fair, robust, and auditable? When it turns out that some applicants were wrongly disqualified before the original lottery (and you find out after the lottery), can you make it right without advantaging some applicants over others? What if the number of wrongly disqualified applicants is initially unknown and the process might need to be repeated an unspecified number of times? And how did a math grad student end up designing and implementing a marijuana lottery anyway? These questions and more are answered in this study of randomness and procedural issues. (Received September 19, 2015)