Abstract:

Let's say you have 5 muffins and you want to cut them up and give them out to Alice, Bob, and Carol so that they each get $5/3$. This is easy! You can cut each one into $1/3$-$1/3$-$1/3$ and give each person five $1/3$-pieces. But then the smallest piece is $1/3$. Can we do better? Is there a way to divide 5 muffins for 3 people so that the smallest piece is BIGGER than $1/3$? What is the BEST you can do?

More generally... Given $m$ muffins and $s$ students, how can you divide $m$ muffins for $s$ students so that each student gets $m/s$ and the SMALLEST piece is MAXIMIZED? We will discuss various techniques to solve this problem. We will also discuss why this was a good research project.