Given a cycle $C_k$ on $k$ vertices, we say that a graph $G$ is $C_k$-saturated if it does not contain a $C_k$-subgraph, but the addition of any new edges to $G$ creates at least one copy of $C_k$. In 1993 Barefoot, Casey, Fisher, Fraughnaugh and Harary determined all pairs $(n, m)$ for which there is a $C_3$-saturated graph on $n$ vertices and $m$ edges. In this talk, we will characterize all pairs $(n, m)$ for which there is a $C_5$-saturated graph on $n$ vertices and $m$ edges, and provide some general results about the size of $C_k$-saturated graphs when $k$ is odd. This is joint work with Ron Gould and Minjung Kang.

For the DM seminar schedule, see:

https://go.vcu.edu/discrete