

# Many Cheerful Facts

Organizer: Jeffrey Galkowski, Alex Kruckman  
Wednesday, 3:00pm-4:00pm, 891 Evans

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November 16.

Speaker: Elan Bechor, UC Berkeley  
Title: *The Stable Marriage Problem*

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Given  $n$  men and  $n$  women, each with a ranked list of preferences for the members of the opposite sex, how can we place them into  $n$  stable marriages? By stability, we mean we want to avoid a scenario where some man and some woman both prefer the other over their current partners. We can use the Gale-Shapley algorithm, which guarantees such a stable matching exists by using a model that recalls 50s-style dating. We will also talk about how a variant of the Gale-Shapley algorithm was used to change how residents are assigned to hospitals. Finally, in a shocking conclusion, we prove that one sex has a universal advantage over the other using the Gale-Shapley algorithm.

I am the very model of a modern Major-General,  
I've information vegetable, animal, and mineral,  
I know the kings of England, and I quote the flights historical  
From Marathon to Waterloo, in order categorical;  
I'm very well acquainted, too, with matters mathematical,  
I understand equations, both the simple and quadratical,  
About binomial theorem I'm teeming with a lot o' news,  
With many cheerful facts about the square of the hypotenuse.  
I'm very good at integral and differential calculus;  
I know the scientific names of beings animalculous:  
In short, in matters vegetable, animal, and mineral,  
I am the very model of a modern Major-General.