In this lecture, we'll discuss how analytics and, in particular, optimization is used in online dating.

Specifically, we'll discuss the story of the company eHarmony that uses optimization to maximize the probability of a successful match between compatible adults.

The goal of eHarmony is to take a scientific approach to love and marriage and offer it to the masses through an online dating website focused on long term relationships.

Indicators of success for eHarmony include the fact that nearly 4% of U.S. marriages in 2012 are a result of eHarmony.

Furthermore, the company has generated, by 2009, over $1 billion in revenue.

How is eHarmony different?

Unlike other online dating websites, eHarmony does not have users browse other users' profiles.

Instead, eHarmony uses a compatibility score between two people and uses optimization algorithms to determine the user's best matches.

How does eHarmony compute the compatibility score?

The score is based on 29 different dimensions of personality including character, emotions, values, traits, etc.

The calculation involves a 436 questionnaire.

The matches must meet at least 25 out of 29 compatibility areas.

The graph from eHarmony's website shown in this slide describes one such question regarding character.

Let us discuss the history of the company.

The founder of the company is Dr. Neil Clark Warren, a clinical psychologist who counseled couples and began to see that many marriages ended in divorce because couples were not initially compatible.

Warren has written many relationship books.

Finding the Love of your Life, The Triumphant Marriage, Learning to Live with the Love of Your Life and Loving It, Finding Commitment, and many others.

In the late 1990s, after more than 35 years of work as a clinical psychologist and marriage counselor, Warren

decided to test his theory that certain characteristics can predict compatibility and lead to more satisfying relationships.

After three years of research Warren developed a model of compatibility that is now the basis of the company's matching system.

The service launched its matching service for singles in 2000.

Since then, the company has had about 33 million members, and as of 2008, about 15,000 people take the eHarmony questionnaire each day.

Interested users may fill out the compatibility quiz, but in order to see matches members must pay a membership fee to eHarmony.

What is a distinguishing characteristic of eHarmony?

While eHarmony was not the first online dating website and faced serious competition, there is a key difference from other dating websites.

eHarmony takes a quantitative optimization approach to matchmaking rather than letting users browse their website.

In this lecture, we'll explore some of the analytics eHarmony uses.