Department of Mathematics and Statistics Colloquium

Designing Bridges with Linear Algebra - The Finite Element Method

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Abstract: While you have probably heard that linear algebra is a very important branch of mathematics, did you know that it is a crucial component in the mathematical design of bridges? It is also necessary for the modeling of weather patterns, and indispensable in determining underground oil flow. This talk will discuss an area of computational mathematics in which we determine the best approximation to a solution of an ordinary differential equation using a combination of linear algebra and basic integration. We will see how a differential equation is almost identical to a system of equations, and can be approximately solved using similar methods. We will see some examples, and finish with one of the most famous methods developed in the 20th century for approximating the solution to differential equations.

Monday, November 04 at 3:50 pm in Roop 103

Refreshments at 3:30 pm