

# Finite Element Methods

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## 1

The primary learning objective is to learn and understand the mathematics of the finite element method. This is a method of numerical approximation used in differential equations. This builds off the of Math 305 course I took last year. This I will program an implementation of the method.

## 2

My responsibilities are to read the textbook (The Mathematics Theory of Finite Element Methods, by Susanne C. Brenner and L. Ridgway Scott), then be able to understand and communicate the information in weekly presentations to Paul. Using the information that I have gained I will program an implementation of a finite element method, that solves several classical PDEs.

## 3

I will meet and discuss the project with my faculty sponsor weekly, and feedback will be provided on those regular meetings. My performance will be evaluated by my understanding of the mathematics, and the quality of the program that I develop.

## 4

I will demonstrate what I have learned in both a verbal presentation, and in the final product of the code allong with a final paper that docuents the code and the mathematical theory. The final code will be due near the end of the independent study.

## 5

We have arranged to meet weekly on Thursday morning, then we are also able to communicate over email. Does it work? What!