This new course will offer:

- Crash course in computational materials science and engineering
- Basics in numerical methods
- Hands-on experience using computational tools and resources

..... and more!

Focus of the Course

Knowledge of how density functional theory calculations, molecular dynamics, kinetic Monte Carlo methods, and phase-field models work.

Working knowledge of tools for computational thermodynamics and finite element modeling.

Numerical methods used to solve governing equations in materials science and engineering.

Opportunities for advanced students to develop their own scientific computing codes.

Utilization of high-performance computing resources.

To take advantage of rapidly growing computational resources, the field of materials science is increasingly relying upon computational materials science and engineering software tools. With today’s tough employment environment, experience and expertise in computational techniques can give you the edge to succeed.

This new course will give you an overview, basic background, and hands-on experience in computational materials science and engineering. The techniques learned are useful not only to someone who wants to pursue modeling as a primary interest, but also to those who want to enhance their experimental work with computational tools.

Assignments for MSE493 will focus more on using tools and modifying codes written in MATLAB, while MSE593 assignments will require writing Fortran codes. Students signed up in MSE593 will be paired up with those in MSE493 to carry out projects.

For more information, contact
Prof. Katsuyo Thornton, kthorn@umich.edu
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