

*UMW Department of Mathematics Announcement*

# **Adjoint-Based a Posteriori Error Estimation**

Presented by

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**Friday, February 3, 2017, 4 p.m.  
140 Trinkle Hall**

**Abstract:** There are multiple types of error estimation for numerical approximations to mathematical problems. Some are informative about convergence of a particular method, while others are more informative about errors in a particular solution. In this talk I will discuss a posteriori error estimation. This error estimation is used to determine the error in a particular numerical approximation. It can also be used to quantify which regions are generating the dominating error, and can be used to adaptively refine the mesh to reduce the error with minimal computational cost. I will develop this estimation technique from first principles and look at two examples, one for linear systems of equations and another for an ordinary differential equation. I will also discuss current research involving implementing these error estimation techniques for time stepping methods such as Euler's method.

*“Dr. Collins is a candidate for an open position in the department”*

