<table>
<thead>
<tr>
<th>Name: Numerical Analysis</th>
<th>Professor: JungHwan Song</th>
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<td>Dept.: Mathematics</td>
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**Description:** Theory and practice of computational procedures including (1) finding an approximated solution of a function, (2) approximation of functions by interpolating polynomials, (3) numerical differentiation and integration, (4) finding a solution of system of equations with using theories in linear algebra.

**Objective:** Study and practices in finding an approximated solution of a function, approximation of functions by interpolating polynomials, numerical differentiation and integration, and finding a solution of system of equations with using theories in linear algebra.

**Preparations:** [Numerical Methods : Faires/Burden] [pre requisites : Calculus I and II, and Linear Algebra]

**Schedule:**
- **Week 1**
  1. Introduction of the course, Review of Calculus.
  2. Bisection method, Fixed point method
  3. Newton method
- **Week 2**
  1. Secant method, Error Analysis
  2. **Exam1**
  3. Interpolation and Lagrange polynomial
  4. Divided difference, Hermite Interpolation
- **Week 3**
  1. Cubic Spline
  2. Numerical differentiation
  3. **Exam2**
  4. Elements of numerical integrations
- **Week 4**
  1. Composite numerical integrations, Romberg algorithm
  2. Systems of linear equations, pivoting.
  3. Iterative Techniques for solving Linear systems
  4. **Final exam**

**Evaluation:**
- Two Midterms (60%)
- Final (30%)
- Attendance (10%)
- Assignments (0%)
- Participation (0%)
- Etc. (0%)