

**Subject: Engineering Mathematics**

**Instructor: Cheng-Ying Yang, Ph.D.**

Meeting Hours: Wednesday 13:10-16:00

Office Hours: Tuesday 10:10-12:00

Thursday 10:10-12:00

Textbook:

Erwin Kreyszing, *Advanced Engineering Mathematics*, 10th ed. John Wiley and Sons, 2018

Contents:

1. Ordinary Differential Equations
  - First Order DE; -Linear DE
  - Modeling; -Homogeneous Linear Equations
  - Euler-Cauchy Equation;
  - Higher Order Linear DE
2. Laplace Transform
  - Laplace Transform and Inverse Transform
  - Transforms of Derivatives and Integrals
  - Unit Step Function;
  - Delta Function
  - General Formulas
3. Fourier Analysis
  - Fourier Series; -Even and Odd Functions
  - Half-Range Expansions;
  - Fourier Integrals
  - Fourier Cosine and Sine Transforms
  - Fourier Transform

Grading:	Midterm (2)	25%
	Final	30%
	Participation Assignment	20%

Reference:

1. Peter V. O'Neil, *Advanced Engineering Mathematics*, 6th ed., Cengage Engineering, 2006
2. Dennis G. Zill, Michael R. Cullen, *Advanced Engineering Mathematics*, 3rd ed., Jones and Bartlett, 2006.
3. Dean G. Duffy, *Advanced Engineering Mathematics with MATLAB*, 2nd ed., McGraw Hill, 2003
4. Thomas L. Harman, *Advanced Engineering Mathematics with Matlab*, 2nd ed., Brooks/Cole, 2000.
5. Robert J. Lopez, *Advanced Engineering Mathematics*, Addison Wesley, 2001.
6. 羅文陽，*工程數學精要*，高立，2006
7. 許世壁、邱創雄，*工程數學*，高立，2006
8. 鄒宏碁，陳自雄，*工程數學 第五版*，儒林，1998