AE 4070 Rotor and Propeller Theory (3-0-3)
Pre-requisite: Undergraduate Aerodynamics.

Text: Principles of Helicopter Aerodynamics
J. Gordon Leishman, Cambridge University Press, 2000

Ref: Johnson, Helicopter Theory
Papers from Journals and the American Helicopter Society Proceedings

I. Introduction to Helicopter Aerodynamics

II. Aerodynamic Performance of a Rotor in Hover and Climb

III. Aerodynamics Performance of a Rotor in Descent

IV. Aerodynamic Performance of a Rotor in Forward Flight

V. Introduction to Vortex Wake Theories - Gray and Landgrebe Tip Vortex Models

VI. Basic Helicopter Performance

Two take-home exams (25% each), homework assignments (for a total of 25%), and a take-home final examination (25%) are planned. An average of 90% or above is required for an ‘A’. An average of 80% to 89% is required for a ‘B’ grade.