

AME 105: Introduction to Aerospace Engineering

Textbook (req.): *Introduction to Flight*, 6th ed., J. D. Anderson (2008) McGraw-Hill
 (rec.): *The Simple Science Of Flight*, 2nd ed., H. Tennekes (2009) MIT Press

Meeting Time: MWF 9:00-9:50 (Lecture)
Lecture Room: VHE 206

Tu or Th 11:00-12:20 (Lab)
Lab Room: SAL 127

Professor: G.R. Spedding
Office: OHE 430B
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Grading: HW/GLab/Project 15/15/25%
 Mid-Term Exam 10%
 Quizzes 10%
 Final Exam 25%

Lecture Schedule

<u>Week</u>	<u>Dates</u>	<u>Lecture/Discussion Topic</u>	<u>Reading</u>
1	Aug 26, 28, 30	Introduction/Engineering Fundamentals	Ch. 1 (history) Ch. 2 (basic physics, units)
2	Sept 2 Sept 4, 6	----- Labor Day Holiday ----- Eng. Fundamentals/Standard Atmosphere	Ch. 3 (std. atm.)
3	Sept 9, 11 Sept 13 (Q)	Introduction to Aerodynamics	Ch. 4.1-2 (continuity, compressibility)
4	Sept 16, 18 Sept 20 (Q)	Bernoulli/Air Speed Measurement	Ch. 4.3-4 (Euler and Bernoulli eq.), 10-11.1, 12.2 (pitot tubes)
5	Sept 23, 25 Sept 27 (Q)	Airfoils/Aerodynamic Coefficients I	Ch. 5.1-4 (airfoils, force coefficients, airfoil data)
6	Sept 30, Oct 2 Oct 4 (Q)	Airfoils/Aerodynamic Coefficients II	
7	Oct 7, 9 Oct 11 (Q)	Finite Wings/Induced Drag	Ch. 5.5-6 (basics) Ch. 5.13-15 (induced drag)
8	Oct 14, 16 Oct 18 (Q)	Real wings/Flaps/Wing Design	Ch. 5.17 (flaps) Ch. 5.20-24 (historical),
9	Oct 21, 23 ***Oct 25***	Viscosity/Boundary Layers **** Mid-Term Examination #1 ****	Ch. 4.15-16 (laminar boundary layers)
10	Oct 28, 30 Nov 1	Drag/Separation/Turbulence	Ch. 4.20 (separation) Ch. 4.17, 19, 21 (turbulence)
11	Nov 4, 6 Nov 8 (Q)	Aircraft Performance I	Ch. 6.1-3 (drag polar, thrust req.)
12	Nov 11, 13 Nov 15 (Q)	Aircraft Performance II	Ch. 6.3-6 (thrust and power)
13	Nov 18, 20 Nov 22	Stability and Control I ----- Glider Flight Tests -----	Ch. 6.14 (L/D) values Ch. 6.13-14 (range and endurance)
14	Nov 25 Nov 27-Dec 1	Stability and Control II ----- Thanksgiving Recess -----	Ch. 7.1-6 (static stability, long.) [Hand in Glider Report on 30th]
15	Dec 2, 4 Dec 6	High-Speed Flight Last class/Review	Ch. 5.6, 8-11 (compressibility)
***** *****	*** Dec 16 *** *** (Monday) ***	***** Final Examination ***** *** (11:00 a.m. – 1:00 p.m.) ***	

Office Hours	Prof Spedding T,Th 9:00-11:00	Graphics TA: Orlando Delpino (delpinog@usc.edu)	Glider TA: TBA
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