

MAE 159
Aircraft Design
Winter 2025

*A trade study of **advanced technology** on the **economic performance** of a commercial transport.*

Design Specification:

Number of passengers (2-class, domestic rules)	210
Weight of cargo (10 pounds/ft ³) Maximum Payload Weight 55,000 lbs	8000 pounds
Range (still air)	3500 nautical miles
Takeoff field length (sea-level, hot day 84° f)	6900 feet
Landing approach speed	135 knots
Cruise Mach number	0.80
Initial cruise altitude	35,000 feet
Maximum wingspan	125 feet
Maximum landing weight with 45% fuel	