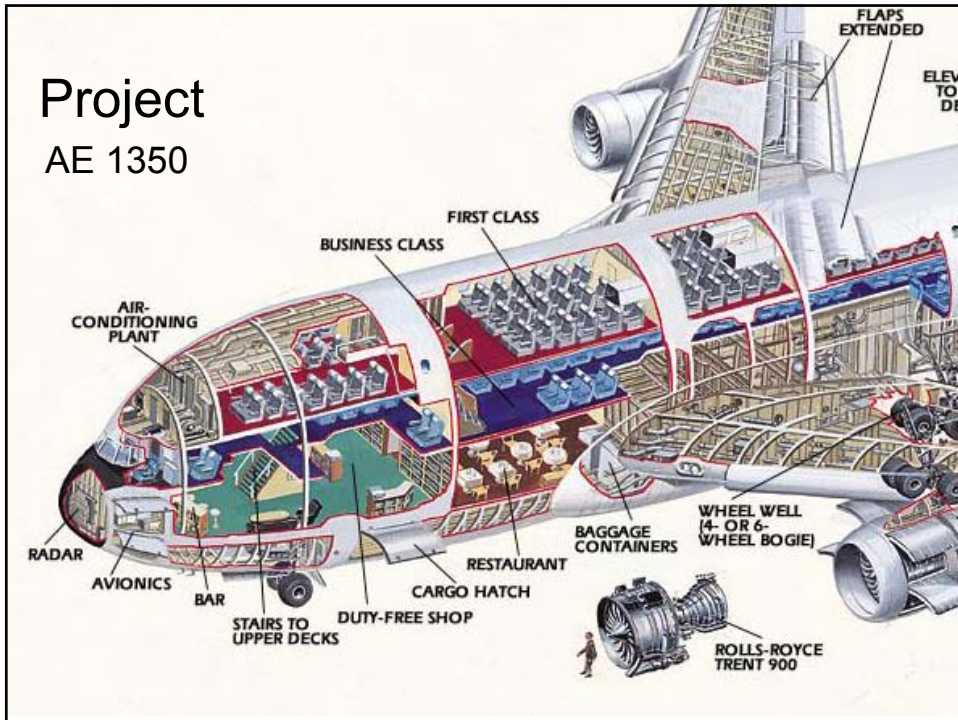


# Project

## AE 1350



## AE1350 Project Assignment

- Due at the beginning of class, **12:05pm, December 5**
- Worth between 0% and 20% of your grade, depending on level of effort
- You may work in groups
  - Maximum group size is 3
  - Expected level of effort scales with number of people on teams

## Your task...

- Develop the design of a new aerospace system:
  - Develop a concept
  - Develop requirements
  - Partial Preliminary Design
    - Select components and architecture
    - Analyze your design
- For this project, an “Aerospace System” can be
  - An aircraft
  - A launch vehicle or spacecraft
  - A system composed of more than one vehicle

## Basis of Grade

- Grade
  - Accuracy of analysis and conclusions
  - Originality of concept
    - Note: feasibility/practicality of concept is NOT part of grade, only originality – so be creative
  - Report follows requirements
- “Level of Effort” (determination of 0-20%)
  - Level of detail of analysis
  - Number of design concept options considered
  - An estimate of time spent on project

## Potential Analyses

- Justification of concept selection (among multiple)
- Justification of aircraft size / weight
- Justification of other design choices (engine, arrangement, airfoil, wing span, ...)
- Predicted performance (Cruise speed, range, endurance, take-off length, landing length)
- Predicted cost
- Justification of a manufacturing process
- Built and test fly a model of the aircraft
- Others

## Report

- Report *shall* be type-written
- Report *shall* contain at least the following sections
  - Title page: Title, class (AE1350), authors, date
  - Abstract: 100-150 word summary of entire document
  - Introduction: State precise scope of project and concept(s)
  - Other section(s) in main body of work
  - Conclusions: Summarize work, state any conclusions about feasibility of concept – and whether work should continue on your concept
  - References: Figures, data, text quotes, information must be referenced; Avoid web pages as references

## Sample Topics (Don't be limited to this list!)

- A solar-powered unmanned aircraft that flies at very high altitude over cities for weeks at a time and acts as a communication node
- An airliner that rarely lands – passengers are shuttled to and from the large aircraft in smaller aircraft – the large aircraft goes back and forth across the Atlantic
- An unmanned aircraft launched and recovered to/from a submerged submarine
- A system to deliver a package anywhere in the world in 60 minutes
- A fully reusable manned space launch system
- A space elevator