



## **Ephrata High School Course Syllabus**



### **Aviation 5934**

#### *I. Course Description*

This class is intended to be an introduction to the world of flight, general aviation aircraft and the solving of real-life problems in real-world situations with the student getting an opportunity to be exposed to a “ground-school” like experience. Particularly, one who enjoys mathematics, the physical sciences, and/or is interested in further education.

Classroom activities will include the design, construction and use of an airfoil in wind tunnel testing, experiments of basic aerodynamic concepts in the creation of a “lifting body” utilizing classroom materials to create a glider, which will be tested by the students, lastly, a “virtual aviation experience” will be available for daily classroom use using flight simulator software, for demonstration(s) of classroom concepts, flight introduction, flying lessons and cross-country experiences.

#### *II. Materials & Equipment*

Materials used in Aviation include many common household items for the construction of an airfoil. A commercially purchased balsa wood – based kit for flight duration experimentation, and other classroom sourced materials for classroom manipulatives. Maps, charts, handouts, calculators, etc.

#### *III. Course Goals & Objectives*

Classroom experiences are not limited to the above. There shall also be experiences in:

- Use of a wind tunnel for testing of airfoils.
- Flight planning.
- Navigation/map-reading.
- Flight simulation experiences, utilizing Microsoft Flight simulator 2004.
- Aviation weather.
- Navigation.

#### *IV. Course Topics (Summary Outline)*

Components of this aviation experience will include:

- Science and mathematical concepts related to aviation

- American aviation history and its milestones.
- Wing design, with the building of a wing, its physics, and its testing.
- Lifting bodies.
- Basic airframe construction.
- Aircraft basics.
- How a plane flies and basic aerodynamics.
- The airport and its environment.
- General aviation engines.

#### *V. Assignments & Grading*

Design work, drafts and drawings = 20%

Major projects = 45%

Final examination, tests, quizzes, and other classroom activities = 33%

Class Participation = 2%