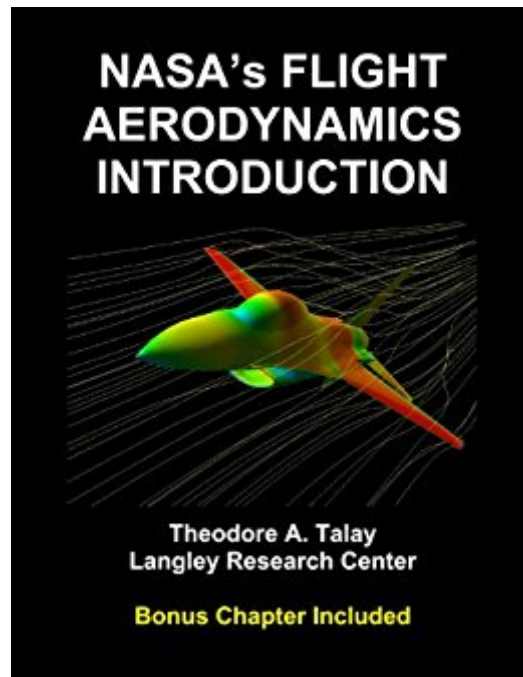


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# NASA's Flight Aerodynamics Introduction (Annotated And Illustrated)



## Synopsis

The science of aerodynamics can be traced back thousands of years to its beginnings but, remarkably, only one human life span has separated the first heavier-than-air powered airplane flight at Kitty Hawk from the first manned moon landing. The last few decades have witnessed phenomenal growth in the science and technology of aerodynamics and no letup is in sight. For those who possess an interest, the task of education encompassing all the various aspects of the subject is staggering. Specialization is indicated but a background knowledge is an essential of any education. This volume is a result of several semesters of the author's teaching of an introductory course in aerodynamics to apprentices and technicians at the NASA Langley Research Center. The problem faced was to provide more than a layman's treatment of the subject but not the detail as taught in many individual courses on the college level. The result is a highly qualitative, illustrated set of notes which, through the teaching process, was modified to fulfill the objectives better. A thorough revision of these notes with considerable up-to-date material has resulted in the text as presented herein. It is hoped that this volume will stimulate the reader's interest to pursue more specialized education in the many topics of aerodynamics. Bonus chapter (Aerodynamics Overview) included. Hyperlinked index for easy navigation. 251 pages. 171 illustrations and diagrams. Includes the following sections: Foreword I. A Short History of Flight II. Background Information The Atmosphere Winds and Turbulence The Airplane III. FLUID FLOW The Fluid The Flow Ideal Fluid Flow Real Fluid Flow IV. SUBSONIC FLOW EFFECTS Airfoils and Wings Aerodynamic Devices Propellers and Rotors V. TRANSONIC FLOW VI. SUPERSONIC FLOW The SST Sonic Boom VII. BEYOND THE SUPERSONIC Hypersonic Flight Lifting Bodies Space Shuttle VIII. PERFORMANCE Motions of an Airplane Class 1 Motion Class 2 Motion Class 3 Motion-Hovering Flight IX. STABILITY AND CONTROL Stability Control Appendix A - AERONAUTICAL NOMENCLATURE Appendix B - DIMENSIONS AND UNITS Appendix C - COORDINATE SYSTEMS Bibliography Bonus Material Aerodynamics: An Explanation Overview History Design issues with increasing speed Continuity assumption Laws of conservation Incompressible aerodynamics Subsonic flow Transonic flow

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## Customer Reviews

As a flight instructor and former aeronautical science major, this book has been a pleasant review and knowledge enhancer for me. It's presented neatly and offers easy to understand information that made me stop and feel revelated. I highly recommend this to all my friends and coworkers

Good book ..... for the curious, people like me.

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