

# Erindale College

<b>Assessment Period:</b>	2021 S2
<b>Course:</b>	FLIGHT
<b>Unit:</b>	Commercial Aviation (1.0)
<b>Accreditation:</b>	T
<b>Year:</b>	11

## Unit Goals

- demonstrate depth and breadth of scientific knowledge relevant to the aviation industry
- critically research, analyse and evaluate aviation law and procedures from a variety of sources to solve practical and theoretical problems of aircraft operation
- investigate the relationship between requirements outlined in legislation and a range of operational publications
- apply an understanding of official documents such as Flight Notifications and SAR times to flight planning requirements

## Content Description

### Science Inquiry Skills

- identify, research and construct questions for investigation concerning the design and structure of aircraft; propose hypotheses; and predict possible outcomes arising from various designs
- represent and organise data in meaningful and useful ways, including using appropriate SI units and symbols, to identify trends, patterns and relationships
- investigate a range of aviation and media texts, and evaluate processes, claims and conclusions by considering the quality of available evidence; and use reasoning to construct scientific arguments
- select, use and interpret appropriate mathematical models, including graphs and tables of data, to solve problems and make predictions concerning aircraft performance

### Science as a Human Endeavour

- analyse and critique the importance of aviation law to aircraft operations and safety
- analyse and describe the roles of Air Traffic Control and CENSAR in the maintenance of safety and the obligation on pilots to maintain safe operations
- critique the ethical, legal and environmental issues that influence the safe use of aircraft
- identify social, economic, cultural and ethical considerations that have influenced the adoption of new technology in aviation
- apply commercial aviation knowledge to predict and solve problems associated with the various classifications of commercial flying
- understand the practical and theoretical problems faced by commercial pilots using scientific methods to solve basic fuel and time problems associated with flying

### Science Understanding

- explain the differences between licence types and the requirements for IFR flight
- describe and calculate the differences between MACH number and other measures of speed
- describe the effect of bow waves in supersonic flight and explain how the sonic boom is generated using principles drawn from the Doppler effect
- analyse and apply complex loading and take-off performance charts (CPL level) for fixed-wing and

rotary wing aircraft

- calculate climb, cruise and descent performance for specific aircraft and apply to flight planning
- calculate apply Equi-Time Points and Point of No Return (ETP's and PNR's) to flight planning tasks
- investigate and explain the special design features related to multi engine aircraft and the consequent operational requirements
- discuss the application of Air Law to specific operational requirements and limitations
- identify factors in effective decision-making and cockpit workload management
- research and explain helicopter structures and demonstrate understanding of the benefits of different planforms
- compare various anti-torque configurations and controls such as the cyclic, the collective, the anti-torque pedals, and the throttle to fixed-wing aircraft
- analyse the effects of torque and gyroscopic effects on rotary-wing craft; including precession, auto rotation and rotational velocities
- demonstrate an understanding of lift and drag for rotor blades and pressure patterns produced by rotors
- research and explain the effect of factors such as translational lift, transverse flow effect and retreating blade stall on aircraft performance
- investigate the operational reasons for airspace limitations, altitudes, taxiing and circuit procedures for fixed-wing and rotary wing aircraft

## Assessment Tasks

Name	Due Date	Weighting
Assignment 1	30 August	20%
Test 1	1 September	30%
Assignment 2	8 November	20%
Test 2	10 November	30%

## School Assessment Information

### For penalties for late and non-submission of work

See [BSSS Policy and Procedure Manual 4.3.10](#) for further information.

### For academic integrity

See [BSSS Policy and Procedure Manual 4.3.12](#) for further information.

### For appeals processes

See [BSSS Policy and Procedure Manual 7.2](#) for further information.

### For moderation procedures (internal and external)

See [BSSS Policy and Procedure Manual 5](#) for further information.

### For meshing procedures

See [BSSS Policy and Procedure Manual 5.4.1](#) for further information.

**For method of unit score calculation**

See [BSSS Policy and Procedure Manual 4.3.6.2](#) for further information.

**For procedures for calculating course scores**

See [BSSS Policy and Procedure Manual 4.3.13.2](#) for further information.

## Achievement Standards for FLIGHT T - Year 11

	<i>A student who achieves an A grade typically</i>	<i>A student who achieves a B grade typically</i>	<i>A student who achieves a C grade typically</i>	<i>A student who achieves a D grade typically</i>	<i>A student who achieves an E grade typically</i>
<b>Concepts, Models &amp; Applications</b>	<ul style="list-style-type: none"> <li>critically analyses the fundamental properties and functions of system components, processes and interactions, and the effects of factors across a range of scales</li> <li>evaluates the nature, functions, limitations and applications of theories and models using evidence, in unfamiliar contexts</li> <li>analyses evidence with reference to models and/or theories, and develops evidence-based conclusions and evaluates limitations</li> </ul>	<ul style="list-style-type: none"> <li>analyses the fundamental properties and functions of system components, processes and interactions, and the effects of factors across a range of scales</li> <li>analyses the nature, functions, limitations and applications of theories and models using evidence, in familiar contexts</li> <li>assesses evidence with reference to models and/or theories, and develops evidence-based conclusions and discusses limitations</li> </ul>	<ul style="list-style-type: none"> <li>explains the fundamental properties and functions of system components, processes and interactions and the effects of factors across a range of scales</li> <li>explains the nature, functions, limitations and applications of theories and models using evidence, in familiar contexts</li> <li>explains evidence with reference to models and/or theories, and develops evidence-based conclusions and identifies limitations</li> </ul>	<ul style="list-style-type: none"> <li>describes the fundamental properties and functions, and with some description of system components, processes and interactions, and the effects of factors across a range of scales</li> <li>describes the nature, functions, limitations and applications of theories and models with supporting evidence</li> <li>describes evidence, and develops conclusions with some reference to models and/or theories</li> </ul>	<ul style="list-style-type: none"> <li>identifies the fundamental properties and functions of system and identifies components, processes and interactions, and the effects of factors across a range of scales</li> <li>identifies the nature, functions, applications, and some possible limitations of theories and models, with some evidence</li> <li>identifies evidence, and asserts conclusions with little or no reference to models and/or theories</li> </ul>
<b>Contexts</b>	<ul style="list-style-type: none"> <li>critically analyses epistemology, role of peer review, collaboration and technology in developing knowledge</li> <li>critically analyses the influence of social, economic, ethical and cultural factors on Science</li> </ul>	<ul style="list-style-type: none"> <li>analyses epistemology, role of peer review and technology in developing knowledge</li> <li>analyses the influence of social, economic, ethical and cultural factors on Science</li> </ul>	<ul style="list-style-type: none"> <li>explain epistemology, role of peer review and technology in developing knowledge</li> <li>explains the influence of social, economic, ethical and cultural factors on Science</li> </ul>	<ul style="list-style-type: none"> <li>describes the role of peer review in developing knowledge</li> <li>describes the influence of social, economic, ethical and cultural factors on Science</li> </ul>	<ul style="list-style-type: none"> <li>identifies that scientific knowledge has changed over time</li> <li>identifies the influence of social, economic, ethical and cultural factors on Science</li> </ul>
<b>Inquiry Skills</b>	<ul style="list-style-type: none"> <li>designs, conducts and improves safe, ethical and original inquiries individually and collaboratively, that collect valid, reliable data in response to a complex question</li> <li>analyses causal and correlational relationships, anomalies, reliability and validity of data and representations, and analyses errors</li> <li>analyses processes and claims, and provides a critique based on evidence, and critically analyses alternatives</li> <li>reflects on own thinking and evaluates planning, time management, use of appropriate work strategies</li> <li>communicates concisely, effectively and accurately, demonstrating scientific literacy in a range of modes, styles, representations, and genres for specific audiences and purposes, with appropriate evidence and accurate referencing</li> </ul>	<ul style="list-style-type: none"> <li>designs, conducts and improves safe, ethical inquiries individually and collaboratively, that collect valid, reliable data in response to a question</li> <li>analyses causal and correlational relationships, anomalies, reliability and validity of data and representations, and discusses errors</li> <li>assesses processes and claims, and provides a critique with reference to evidence, and analyses alternatives</li> <li>reflects on their own thinking and analyses planning, time management, use of appropriate work strategies</li> <li>communicates clearly and accurately, demonstrating scientific literacy in a range of modes, styles, representations and genres for specific audiences and purposes, with appropriate evidence and accurate referencing</li> </ul>	<ul style="list-style-type: none"> <li>plans and conducts safe, ethical inquiries individually and collaboratively, that collect valid data in response to a familiar question</li> <li>explains causal and correlational relationships, anomalies, reliability and validity of data and representations, and cites common errors</li> <li>explains processes and claims, and identifies alternatives with reference to reliable evidence</li> <li>reflects on their own thinking and explains planning, time management, use of appropriate work strategies</li> <li>communicates accurately demonstrating scientific literacy, in a range of modes, styles, representations, and genres for specific purposes, with appropriate evidence and mostly consistent referencing</li> </ul>	<ul style="list-style-type: none"> <li>follows a procedure to conduct safe, ethical inquiries individually and collaboratively, to collect data in response to a simple question with varying success</li> <li>describes trends, relationships and anomalies in data, identifies anomalies, and some possible sources of error</li> <li>describes processes and claims, and identifies the need for improvements with some reference to evidence</li> <li>reflects on their own thinking, with reference to planning and the use of appropriate work strategies</li> <li>communicates demonstrating some scientific literacy, in a range of modes, representations, and genres with some evidence and inconsistent referencing</li> </ul>	<ul style="list-style-type: none"> <li>follows a procedure to conduct safe, ethical inquiries individually and collaboratively, to collect data with little or no connection to a question</li> <li>identifies trends and relationships in data, with little or no reference to sources of error</li> <li>identifies processes and the need for some improvements, with little or no reference to evidence</li> <li>reflects on their own thinking with little or no reference to planning, time management, and use of work strategies</li> <li>communicates demonstrating limited scientific literacy, in a range of modes and representations, with inconsistent and inaccurate referencing</li> </ul>