# AVAT13011 *Aviation Human Factors (Air Transport Pilot Licence)*
## Term 1 - 2022

Profile information current as at 19/04/2024 08:42 pm

All details in this unit profile for AVAT13011 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## Corrections

### Unit Profile Correction added on 19-04-22
Extend the duration of the Final Exam from 86 minutes to 120 minutes

## General Information

## Overview
Aviation Human Factors (Air Transport Pilot Licence) will provide you with advanced knowledge of human performance and human limitations associated with high speed, high altitude, multi-crew flight in heavy air transport aircraft. You will also learn about the importance of organisational culture and national culture when operating in the global aviation industry. You will cover the aeronautical knowledge requirements of the Civil Aviation Safety Authority Air Transport Pilot Licence Human Factors syllabus. You will be presented with some of the medical challenges of high speed, high altitude flight. You will examine problems of perception, cognition and behaviour related to flight and the errors that are caused by human limitations. You will reflect on the success of crew resource management strategies to improve pilot judgement and decision making and analyse the principles of threat and error management.

## Details
Career Level: *Undergraduate*
Unit Level: *Level 3*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

## Pre-requisites or Co-requisites
Prerequisite: AVAT12011 Aviation Human Factors (Commercial Pilot Licence).
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

## Offerings For Term 1 - 2022
- Bundaberg
- Cairns
- Online

## Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

## Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

# Class and Assessment Overview

## Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

## Class Timetable

### **Regional Campuses**

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

### **Metropolitan Campuses**

Adelaide, Brisbane, Melbourne, Perth, Sydney

## Assessment Overview

1. **Written Assessment**
Weighting: 40%
2. **Examination**
Weighting: 60%

## Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

# CQUniversity Policies

**All University policies are available on the CQUniversity Policy site.**
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure


This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

# Previous Student Feedback

## Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

### Feedback from Student feedback

**Feedback**

No marking rubric was provided and insufficient information on the assignment task sheet.

**Recommendation**

Integrate marking rubric for the written assignment and increase detail within the task sheet.

### Feedback from Lecturer

**Feedback**

Low response rate.

**Recommendation**

Encourage students to complete the SUTE during the final phase of the term through emails and in-class instructions.

# Unit Learning Outcomes

**On successful completion of this unit, you will be able to:**

1. Classify the physiological conditions related to high altitude flight
2. Investigate human limitations of perception, cognition and information processing related to multi-crew
3. Interpret human behaviour limitations and errors applicable to multi-crew flight
4. Reflect on the crew resource management, judgement and decision making required of a professional pilot
5. Analyse critically the principles of threat and error management.

N/A

# Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level  ○ Introductory Level  ● Intermediate Level  ● Graduate Level  ○ Professional Level  ○ Advanced Level

## Alignment of Assessment Tasks to Learning Outcomes

| Assessment Tasks | Learning Outcomes | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **1 - Written Assessment - 40%** | ● | ● | ● | ● | ● |
| **2 - Examination - 60%** | ● | ● | ● | ● | ● |

## Alignment of Graduate Attributes to Learning Outcomes

| Graduate Attributes | Learning Outcomes | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **1 - Communication** | ● | ● | ● | ● | ● |

| Graduate Attributes | Learning Outcomes | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 2 - Problem Solving | | | • | • | • |
| 3 - Critical Thinking | • | • | • | • | • |
| 4 - Information Literacy | • | • | • | • | • |
| 5 - Team Work | | | | | |
| 6 - Information Technology Competence | | | | • | • |
| 7 - Cross Cultural Competence | | | • | • | • |
| 8 - Ethical practice | • | • | • | • | • |
| 9 - Social Innovation | | | | | |
| 10 - Aboriginal and Torres Strait Islander Cultures | | | | | |

## Alignment of Assessment Tasks to Graduate Attributes

| Assessment Tasks | Graduate Attributes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 - Written Assessment - 40% | • | • | • | • | | • | • | • | | |
| 2 - Examination - 60% | • | • | • | | | • | • | • | | |

## Textbooks and Resources

### Textbooks

**There are no required textbooks.**

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

## Referencing Style

No referencing style set.

## Teaching Contacts

**Craig Needham** Unit Coordinator
c.needham@cqu.edu.au
**Aruna Ranganathan** Unit Coordinator
a.ranganathan@cqu.edu.au

## Schedule

### Week 1 - ATPL HUF Introduction & Revision - 07 Mar 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| HUF Genesis<br>HUF Models;<br>The Reason model<br>The PEAR model<br>HUF accident causes<br>HUF vs. Ergonomics | | |

### Week 2 - HUF management and Organisation - 14 Mar 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Tenerife<br>Corporate Culture<br>Characteristics of a Safe Culture<br>Risk Management | | |

### Week 3 - SHELL Model (Special Guest Capt. Simon Gould B788) - 21 Mar 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| SHELL Model<br>Foundations of Human Factors in<br>Aviation<br>Body Rhythm<br>Chronic Fatigue<br>Stress<br>Leadership<br>Communication | | |

### Week 4 - Crew Resource Management - 28 Mar 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| CRM Defined<br>History and evolution of CRM<br>Impact of Training | | |

### Week 5 - Training Reliance and Threat Error Management (Special Guest Capt. Martin Loewensohn A388) - 04 Apr 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| TEM Defined<br>Classifying threats<br>CRM and TEM<br>Error Management<br>Undesirable Aircraft State (UAS)<br>Line Oriented Flight Training (LOFT) | | |

### Vacation Week - 11 Apr 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|

### Week 6 - Cockpit Design & Advanced Technology (Airbus) - 18 Apr 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|

Information Flow
Design & Location
Design Evolution
Advanced Technology (Discussion with
Airbus)

## Week 7 - Automation - 25 Apr 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Automation Principles<br>History<br>Electronics<br>Solid State Electronics<br>Evolution of Automation<br>Automation Challenges<br>Man vs. Machine Capabilities<br>Automation Reliance<br>Cockpit Future Technology (Airbus) | | |

## Week 8 - Communications & Navigation Surveillance - 02 May 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Automatic Flight Planning<br>ATC systems<br>Flight Deck / ATC integration<br>Safety monitoring of ATS activities<br>FANS | | **Mid-Term Assignment (Written Essay 2500 words)** Due: Week 8 Friday (6 May 2022) 5:00 pm AEST |

## Week 9 - Workload (Special Guest Lachlan Gray - Australian Federation of Air Pilots) - 09 May 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Workload<br>Monitoring<br>Arousal vs. Complacency<br>Incident Discussion | | |

## Week 10 - Investigations (Special Guest James Chapple - Aviation Safety Analyst) - 16 May 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Air Navigation Act<br>Transportation Safety Act<br>Review Accident & Incident Definitions<br>Processes<br>Causation and Culture | | |

## Week 11 - CASA Regulatory Process - 23 May 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Federal Legislation<br>Airworthiness<br>Strict Liability<br>Aviation Transport Security Act | | |

## Week 12 - Revision and Group Exercise (Special Guest - Prof. Doug Drury CQU) - 30 May 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Course Revision<br>Incident Review<br>Group Discussion & Debate | | |

## Review/Exam Week - 06 Jun 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| | | |

## Exam Week - 13 Jun 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Exam Details TBA | | |

## Term Specific Information

This unit extends the knowledge already gained at CPL level with a focus on learning from industry experts. Your lecturer is Capt. Craig Needham, a current A320/321 pilot operating on domestic and short-haul international routes. Appearing live in lectures you will have the chance to hear-from and speak-to other experts in Airline Human Factors;

- Captain Simon Gould B788
- Captain Martin Loewensohn A388
- Airbus Cockpit Design Engineer
- Lachlan Gray (Technical Officer Australian Federation of Air Pilots
- Professor Doug Drury (HUF Expert and Head of Aviation)

Text book for this unit is available as an e-book (downloadable from the AVAT13011 Moodle Site).

## Assessment Tasks

### 1 Mid-Term Assignment (Written Essay 2500 words)

**Assessment Type**
Written Assessment

**Task Description**
For your mid-term assignment, you will be given the choice of two recent aviation accidents where Human Factors played a key role. Your 2500 word essay will examine one of the accidents and define the specific human factors which contributed.
Your assessment document must be produced in electronic form (either as (a) a single page word processed document, (b) a single page Publisher document saved in a PDF format and should be submitted through the assessment link in Moodle, by uploading your file following the on-screen instructions. Note: all submissions are processed through the similarity dectection sofetware (called Turitin) hence, the requirement to submit the Publisher or Power Point documents as PDF files.
You must ensure that all of the work submitted is your own, in line with University Policy requirements.

**Assessment Due Date**
Week 8 Friday (6 May 2022) 5:00 pm AEST
Please submit via Turnitin (Moodle)

**Return Date to Students**
Week 8 Friday (6 May 2022)

**Weighting**
40%

**Assessment Criteria**
Marking in accordance with Rubric listed on Moodle

**Submission**
No submission method provided.

**Learning Outcomes Assessed**

- Classify the physiological conditions related to high altitude flight
- Investigate human limitations of perception, cognition and information processing related to multi-crew
- Interpret human behaviour limitations and errors applicable to multi-crew flight
- Reflect on the crew resource management, judgement and decision making required of a professional pilot
- Analyse critically the principles of threat and error management.

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence

- Ethical practice

## Examination

**Outline**
Complete an invigilated examination.

**Date**
During the examination period at a CQUniversity examination centre.

**Weighting**
60%

**Length**
90 minutes

**Minimum mark or grade**
50%

**Exam Conditions**
Open Book.

**Materials**
Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

# Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

**What is a breach of academic integrity?**
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

**Why is academic integrity important?**
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

**Where can I get assistance?**
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

**What can you do to act with integrity?**



**Be Honest**
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

**Seek Help**
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

**Produce Original Work**
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem