UNSW Course Outline

AVIA1401 Introduction to Human Factors: The Safety Science of Human Performance - 2024

Published on the 05 Feb 2024

General Course Information

Course Code : AVIA1401
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Science
Academic Unit : School of Aviation
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

Human performance is highly dependent on a number of factors, some of which are under our

direct control while others are outside our sphere of control. Nonetheless, with the correct application of knowledge, planning and design, systems can be designed with the human in mind to facilitate human performance. This course examines human behaviour from a theoretical perspective, with the intent to optimise the relationship between humans and their environment. With the focus primarily on the individual, this course examines basic human cognition, including perception, memory, information processing, and decision-making. These principles are then applied to various industries, including aviation to understand the design of systems (i.e., flight deck, consoles, aircraft, etc.) for human use.

Course Aims

The aim of this course is to support students to develop an understanding of human performance and the way that it affects the aviation industry. The course aims to provide an opportunity for students to actively engage in the learning process as part of a community. Activities are linked to both research and scholarship and the real world, and allow students to contribute and discuss their own experiences, and reflect on how human factors issues affect them and others in the aviation industry. A supportive environment is provided but there is an expectation that students will take responsibility for their own learning and also learn co-operatively with their peers. Student assessment is designed to reflect the learning outcomes, and meaningful and timely feedback will be provided on coursework.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Discuss the cognitive aspects of human performance.
CLO2 : Appraise individual and operational factors capable of affecting human performance in aviation.
CLO3 : Evaluate the effectiveness and intuitiveness of physical objects/apparatuses used within aviation, and redesign those which are not considered user-friendly.
CLO4 : Assess existing systems, processes, and design, from a human factors perspective, and translate these to the aviation industry.
CLO5 : Apply and appropriately adapt writing and communication skills and strategies for various stakeholders, needs and contexts.

Course Learning Outcomes	Assessment Item
CLO1 : Discuss the cognitive aspects of human performance.	• Essay • Group Presentation • Final Exam
CLO2 : Appraise individual and operational factors capable of affecting human performance in aviation.	• Formative Assessment • Essay • Group Presentation • Final Exam
CLO3 : Evaluate the effectiveness and intuitiveness of physical objects/apparatuses used within aviation, and redesign those which are not considered user-friendly.	• Essay • Group Presentation • Final Exam
CLO4 : Assess existing systems, processes, and design, from a human factors perspective, and translate these to the aviation industry.	• Essay • Group Presentation • Final Exam
CLO5 : Apply and appropriately adapt writing and communication skills and strategies for various stakeholders, needs and contexts.	• Essay • Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

Teaching comprises lectures and tutorials (face-to-face). All should be interactive, providing opportunities to ask questions and discuss issues raised.

This course aims to provide a learning and teaching environment where students are actively

engaged in the learning process as part of a community of learners. The course aims to be interesting, challenging and enjoyable. Activities are linked to research and scholarship and the real world to allow students to reflect on how human factors issues affect them and others in the aviation industry. Student diversity in terms of experiences and learning styles is valued.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Formative Assessment Assessment Format: Individual	0%	Start Date: Not Applicable Due Date: Not Applicable
Essay Assessment Format: Individual	40%	Start Date: 20 Feb, Week 2 Due Date: 12/03/2024 10:00 AM
Group Presentation Assessment Format: Group	10%	Start Date: Week 5, 12th of March Due Date: Week 9, 9th of April
Final Exam Assessment Format: Individual	50%	Start Date: UNSW Exam Period Due Date: UNSW Exam Period

Assessment Details

Formative Assessment

Assessment Overview

The aim of this assignment is to assess your understanding of AVIA1401 lecture, tutorial and required readings/texts early in the course to help you understanding your progress and identify areas for improvement.

You will be required to complete a multiple-choice progress test during week 4. All material covered in Weeks 1-3 (inclusive) will be examined, including material presented in lectures, tutorials and required readings.
Feedback will be provided in the form of the correct answer immediately post assessment.

Course Learning Outcomes

- CLO2 : Appraise individual and operational factors capable of affecting human performance in aviation.

Essay

Assessment Overview

This assessment comprises two parts.

Part 1: 30% weighting

Part 1 requires you to write an essay of 1,500 words maximum on a human factors issue, with the task due in Week 5. Written feedback on the first submission of the essay will be returned within 10 working days of the submission date.

Part 2: 10% weighting

After receiving feedback on your essay submission, you will be required to rewrite and submit your revised essay based on individual comments provided by the lecturer. The rewritten essay is to be submitted in Week 9. Written feedback for the revised essay will be provided within 10 working days of the respective submission date.

You will be assessed on your ability to integrate concepts explored in weekly lectures, prescribed readings and tutorial readings/questions, as well as your ability to comprehensively and effectively research and communicate the chosen topic using scholarly literature.

Course Learning Outcomes

- CLO1 : Discuss the cognitive aspects of human performance.
- CLO2 : Appraise individual and operational factors capable of affecting human performance in aviation.
- CLO3 : Evaluate the effectiveness and intuitiveness of physical objects/apparatuses used within aviation, and redesign those which are not considered user-friendly.
- CLO4 : Assess existing systems, processes, and design, from a human factors perspective, and translate these to the aviation industry.
- CLO5 : Apply and appropriately adapt writing and communication skills and strategies for various stakeholders, needs and contexts.

Detailed Assessment Description

Overview

This assessment comprises three parts. The first part requires students to write a 1,500 word essay. The second part involves rewriting the essay based on the feedback provided by the lecturer-in-charge. The third part involves peer reviewing a rewritten essay. The lecturer has three weeks to mark all essays. Essays with both comments and a mark will be handed back to students in week 8. Students have one week (plus mid semester break) to rewrite their essay. Students are to hand in **both** their original essay with comments and the rewritten essay in week 9, 9th April. On this day, the essays will be redistributed to peers and their task is to mark the rewritten essay. Students have one week to complete this task; must hand back peer reviewed essay in week TBA.

Marking by peers will involve reading the original submission, reading the comments from the lecturer, and finally reading the rewritten submission to ensure all comments have been addressed. Students must write extensive feedback about the rewritten essay, as well as provide a mark out of 10. This mark should reflect the changes made between the original and rewritten essay, based on the comments from the lecturer. Failure to complete any part of the peer review process (provide detailed feedback on assessment using the lecturer's comments from original submission) will result in students forfeiting the 10% mark attributed to this process.

Essay Question

TBA

Due Date

The essay must be submitted using **both** Moodle as well as providing the Lecturer a hard copy in class prior to 5.

Additional Information

You need to approach this assessment by attending the weekly lectures, completing the prescribed readings from the text and the tutorial readings/questions at the end of the lectures.

In order to complete this assessment, you will need to research the chosen topic. This will not only involve consulting lecture notes, but reading relevant texts in the area, as well as journal papers. Remember, this is an academic assignment and information sources such as magazines and the internet (only to access journal papers) are not appropriate.

In brief, it is expected that you complete this assessment by following the ‘Marking Schedule’. This means that you should include (in addition to an assignment cover sheet):

Title,

Abstract,

Introduction,

Body,

Conclusion, and

References (as per American Psychological Association (APA) publication guidelines)

The essay needs to be formatted as per APA publication guidelines.

*Failure to complete any of the components such as rewriting the essay or peer reviewing a fellow student's essay will result in the total loss of marks for this component.

**A late penalty of 10% per day, including weekends will be applied to all late assessments.

*** Students have an opportunity to contend the mark by their peers if they believe the mark is not supported by the comments. If students wish to contend this mark, they need to do so in the form of a rejoinder. The rejoinder should highlight what changes they have made, the origins of the change, and where the changes feature in the rewritten essay.

****Any student who does not take the peer review process seriously will forego the marks attributable to this component (i.e., 10%), irrespective of their mark for their rewritten essay.

Feedback will be provided in throught the submission in the form of comments, in addition to a mark out of 10.

Assessment Length

1,500

Assessment information

Please note that all written assessment items in this unit must be formatted according to the American Psychological Association (APA) publication guidelines. This includes references.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Group Presentation

Assessment Overview

For your group presentation assessment, you will be allocated into groups of up to 7 members in Week 5. In your group, you will be required to work cohesively to create a 5-minute video. The video is to be focused on a poorly designed physical object within the field of aviation; that is, an object not designed for intuitive use.

During the process, you will be required to take detailed minutes of every meeting, which will need to be handed in (as a hard copy) with the video presentation. The video will be due at the

start of class in Week 9, where it will be played. Your group will be allocated 5 minutes to present the video and 5 minutes for answering questions from class members (10 minutes total per group). All group members **must both** feature in the video as well as be present for the presentation and question time to receive a mark for this assessment.

Detailed written feedback and marks will be provided to groups about their presentation via email within 5 working days of the class presentation date.

Course Learning Outcomes

- CLO1 : Discuss the cognitive aspects of human performance.
- CLO2 : Appraise individual and operational factors capable of affecting human performance in aviation.
- CLO3 : Evaluate the effectiveness and intuitiveness of physical objects/apparatuses used within aviation, and redesign those which are not considered user-friendly.
- CLO4 : Assess existing systems, processes, and design, from a human factors perspective, and translate these to the aviation industry.

Detailed Assessment Description

You will be allocated into groups of 5-6 members after Week 5. In your group, you will be required to work cohesively to create a 5-minute movie. The movie is to be focused on a poorly designed physical object within the field of aviation; that is, an object not designed for intuitive use.

During the process, you will be required to take detailed minutes of every meeting, which will need to be handed in (as a hard copy) with the movie presentation. The movie will be due at the start of class in Week 10, where it will be played. Two (2) minutes following the movie has been allocated for questions. All group members must both feature in the movie as well as be present for the presentation and question time to receive a mark for this assessment.

Detailed written feedback and marks will be provided to groups about their presentation via email within 5 working days of the class presentation date.

Assessment information

NB: If the presentation is not associated with an object within aviation and all of the group members are not in the movie EVERY member of the group will receive a mark of 0.

Assignment submission Turnitin type

This is not a Turnitin assignment

Final Exam

Assessment Overview

This exam is held during the official UNSW final examination period and is designed to test your knowledge of all topics covered throughout the term. The exam format consists of three essays. The final exam is 2 hours duration with 15 mins reading time. Feedback is available through inquiry with the course convenor.

Course Learning Outcomes

- CLO1 : Discuss the cognitive aspects of human performance.
- CLO2 : Appraise individual and operational factors capable of affecting human performance in aviation.
- CLO3 : Evaluate the effectiveness and intuitiveness of physical objects/apparatuses used within aviation, and redesign those which are not considered user-friendly.
- CLO4 : Assess existing systems, processes, and design, from a human factors perspective, and translate these to the aviation industry.
- CLO5 : Apply and appropriately adapt writing and communication skills and strategies for various stakeholders, needs and contexts.

Assessment Length

2 hours

General Assessment Information

UNSW Aviation's decision for Short Extension Policy

The School of Aviation has carefully reviewed its range of assignments and projects to determine their suitability for automatic short extensions as set out by the UNSW Short Extension Policy. After careful consideration of our course offerings and our current structure, we have determined that our current deadline structures already accommodate the possibility of unexpected circumstances that may lead students to require additional days for submission. **Consequently, the School of Aviation has decided to not adopt the Short Extension provision for all its courses and has reassured that flexibility is integrated into our assessment deadlines.** The decision is subject to revision in response to the introduction of new course offerings. Students may still apply for Special Consideration via the usual procedures.

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Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words,
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ideas or research. Not referencing other people's work can constitute plagiarism. The preferred referencing style within this course is APA referencing.

Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.*1* At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and **plagiarism** can be located at:

- • The *Current Students* site https://student.unsw.edu.au/plagiarism, and
- • The *ELISE* training site http://subjectguides.library.unsw.edu.au/elise/presenting

The *Conduct and Integrity Unit* provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct.

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Blended	Topic: Introduction to Human Factors Tutorial: Introduction to Human Factors
Week 2 : 19 February - 25 February	Blended	Topic: Decision Making and Expertise (during the tutorial a writing lecture) Tutorial: Essay writing
Week 3 : 26 February - 3 March	Blended	Topic: Perception and Attention Tutorial: Visual Illusions
Week 4 : 4 March - 10 March	Blended	Topic: Memory Tutorial: Memory
Week 5 : 11 March - 17 March	Blended	Topic: Design of Aviation Systems + Essays Due (30%) Tutorial: Group Project
Week 7 : 25 March - 31 March	Blended	Topic: Education & Training Activity: Education & Training
Week 8 : 1 April - 7 April	Blended	Topic: Individual Differences, Personality & Abilities (Essays will be returned to you) Activity: The Distracted Driver
Week 9 : 8 April - 14 April	Blended	Topic: Human Error, Violations & Safety Culture + Group Presentations (10%) and Essay Re-write due (10%) Activity: Group Presentations
Week 10 : 15 April - 21 April	Blended	Topic: Situation Awareness Activity: Recap

Attendance Requirements

Please note that lecture recordings are not available for this course. Students are strongly encouraged to attend all classes and contact the Course Authority to make alternative arrangements for classes missed.

General Schedule Information

UNSW Aviation's decision to not release Lecture Recordings

The School of Aviation prides itself on offering education that supports students in their personalised learning journey. This involves providing opportunities for students to engage with academics and key aviation experts to identify and address learning gaps, develop core skills and knowledge, and foster an environment of collaboration and meaningful discussion with the UNSW Aviation community. To support this vision, UNSW Aviation has decided to require students to attend all synchronous lectures (in-person or online) and not release class recordings to the student cohort. If students cannot attend a class and require learning support due to unforeseen circumstances, they should contact their Course Coordinator or Program Coordinator to discuss options for support and making up for missed class time.

Course Resources

Prescribed Resources

The prescribed text is:

Salas, E. & Maurino, D. (2010). Human Factors in Aviation (2nd Edition). Amsterdam, The Netherlands: Academic Press/Elsevier.

It is available from the university bookshop and library.

The following texts may be useful additional resources and are available from the library:

1. Matthews, G., Davies, D. R., Westerman, S. J., & Stammers, R. B. (2004). Human Performance: Cognition, stress and individual differences. New York: Psychology Press.

2. Wickens, C.D. and Hollands, J.G. (2000). Engineering Psychology and Human Performance (3rd Edition). Prentice Hall.

3. Sanders, M.S. and McCormick, E.J (1993). Human Factors in Engineering and Design. New York: McGraw-Hill.

4. Orlady, H.W. (1999). Human Factors in Multi Crew Flight Operations. Aldershot, UK: Ashgate Publishing.

5. Wickens, C.D. (1997). Flight to the Future: Human Factors in Air Traffic Control. National Academy Press.

6. Green, R.G., Muir, H., James, M., Gradwell, D. and Green, R.L. (1996). Human Factors for Pilots. Aldershot: Ashgate Publishing.

7. Weiner, E.L. and Nagel, P. (1988). Human Factors in Aviation. San Diego: Academic Press.

8. Estival, D., Farris, C., Molesworth, B. R. C. (2016). Aviation English: A lingua franca for pilots and air traffic controllers. Oxford, UK: Routledge.

Course Evaluation and Development

The myExperience Survey aims to boost student feedback which creates a culture of continuous improvement by identifying, responding to, and acting on student feedback.

The course survey will open towards the end of Term. Students are encouraged to participate in the survey via Moodle, myUNSW, or through the direct myExperience link.

Please provide constructive feedback and focus on your learning experience in relation to the course material. While the survey is confidential, it is not anonymous. Comments that breach the Student Code of Conduct, that are hurtful, racist, sexist or ill natured, may lead to disciplinary action.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	Belinda D innell				School of Aviation, 2nd Floor, Old Main Building 1200-1300 Tuesday – or upon request	No	Yes
Convenor	Brett Mol esworth		School of Avaition, 2nd Floor, Old Main Building			No	No

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the UNSW Student Code of Conduct Website.

Academic Honesty and Plagarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.
Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.
Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The Current Students site,
- The ELISE training site, and
- The Use of AI for assessments site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct

Submission of Assessment Tasks

Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration

Important note: UNSW has a "fit to sit/submit" rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- The Current Students Gateway
- Student Support
- Academic Skills and Support
- Student Wellbeing, Health and Safety
- Equitable Learning Services
- UNSW IT Service Centre
- Science EDI Student Initiatives, Offerings and Guidelines

School Contact Information

Email:

aviation@unsw.edu.au

Telephone:

Undergraduate Courses - +61 2 9385 5756 (Katie Wang)

Postgraduate Courses - +61 2 9385 5787 (Michelle Lee)