

**The University of New South Wales
School of Aviation**

AVIA5004 – Aviation Safety & Accident Prevention

2016 Course Outline

Course Staff

The course facilitator is Ron Bartsch of the School of Aviation. Ron can be contacted via e-mail at rbartsch@avlaw.com.au or r.bartsch@unsw.edu.au.

About the Author

Ronald I C Bartsch BA (Syd), BSc (Syd), LLB (UNSW), MPhil (Syd), LLM (UTS), Dip Ed (Syd)
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The author contributes a diverse range of professional experiences in aviation, law and education to this specialist post graduate course. For the past 40 years Ron has been active in commercial aviation in a variety of senior operational and management roles including Chief Pilot, Chief Flying Instructor and aviation consultant. Admitted to practice as a Barrister to the High Court of Australia back in 1993, and as a lecturer in Aviation Law for over 25 years, Ron has accumulated some 7,000 hours flying experience with endorsements on some twenty multi engine aircraft types from Cessna's through to corporate jets and the Boeing 717-200. Ron was previously in charge of all safety (operational and OH&S) for Qantas Airways Limited (2007-2009) as Group General Manager Safety, Compliance & Operational Risk (SCOR). Ron was also formerly Manager Air Transport Operations with the Civil Aviation Safety Authority (CASA) in Sydney. Ron is currently principal and Chairman of *AvLaw International* aviation consultants. Ron is also Adjunct Senior Lecturer and Visiting Senior Fellow at the University of NSW, contributing author for the Aviation title of *Halsbury's Laws of Australia* and author and co-ordinator of several postgraduate programs in aviation safety and accident prevention, airline operations management, aviation law and author of *International Aviation Law* (Ashgate, 2012) and *Aviation Law in Australia* (4th ed) (Thomson-Reuters, 2013). He is also an aviation specialist member of the Administrative Appeals Tribunal (AAT). Ron's latest international publication *Drones in Society* will be released in late 2016.

Course Information

Safety and accident prevention is an issue that encroaches upon practically every aspect of human endeavour; none more so than within the aviation industry. This course provides an overview of the safety system of civil aviation and of the cause of *organisational accidents* within such complex systems.

This is a 6 UoC course.

Aims

The objective of *Aviation Safety and Accident Prevention* is to provide those working or seeking to work in aviation and associated industries with a broad and detailed understanding of the commercial aviation systems of safety and strategies developed to make that system safer. While the course specifically focuses on commercial air transport operations in Australia it emphasises the vital importance of global co-operation and the role of various international organisations.

Although it is almost universally accepted that travel by air is the safest form of mass transportation, aviation accidents, when they occur, attract significant media and public attention. However, because of the catastrophic consequences of a single aircraft accident, the level of media attention directed at aviation accidents is nearly always disproportional to the level of risk this activity poses to society.

This course studies aviation safety, and the systems that support aviation activities, in the broader context to provide the student with a comprehensive overview of the various components that comprise the aviation environment.

This course also examines the causes of aircraft accidents and the important role and strategies of accident investigation authorities. An investigation of the regulatory, commercial, human, systemic and other causal factors relating to accidents are considered from a perspective of implementing changes to improve the overall aviation safety system.

With advancements in accident investigation research techniques, legislative initiatives and international co-operation increasing, this area of the aviation industry has contributed enormously to the very high levels of aviation safety throughout the world. If all the conditions and factors causally related to aircraft accidents could be identified in advance then “zero accidents” may well be an achievable goal. Unfortunately, history and hindsight have repeatedly proven to be the only reliable sources of such information.

Location

This course runs for the duration of Semester 2.

The course is delivered electronically via UNSW Moodle, on a distance-learning basis. The core component of delivery is the course manual. Course manuals are

written by experts from various backgrounds within the aviation industry and a cross section of disciplines at UNSW. Each manual has been designed to guide the learner in the most effective and efficient way. As new concepts are introduced, practical exercises are provided so you can develop skills, which can be applied immediately in your workplace. Students are able to study at their own pace, in accordance with their particular work schedules and locations. Academic review and feedback is delivered via e-mail or Moodle.

Reference Texts

The prescribed text for *Aviation Safety and Accident Prevention* is:

→ Bartsch R, *Aviation Law in Australia (Fourth edition)*
Thomson Reuters Lawbook Co, Sydney 2013

This text is available at the University Bookshop or can be purchased online through <http://avlaw.com.au> with delivery guaranteed within 5 days. The publication is also the prescribed text for *Law and Regulation in Aviation (AVIA 5001)* and the nominated reference text for various other courses in this program. For instance, the publication has chapters on Airline Operations, Aviation Security, Air Traffic Management, Accident Investigation, Safety Management and Environmental Law.

Other texts that may be of assistance are extracted in the various sections to each unit. You may find that some of these publications are also useful references in areas other than the extracted sections. The Faculty of Law Library (on line services including legal databases are available) at the University of New South Wales has an excellent range of introductory texts in law and legal studies as well as specialised texts in every conceivable area of the law, including aviation law.

Internet

Online content and study materials can be accessed via UNSW Moodle;
<http://moodle.telt.unsw.edu.au/>

Of increasing importance and relevance in studying is of course the Internet. On line legal systems allow you to research source material such as legislation and judgments (both reported and unreported). Search facilities allow instant access to quality information not previously possible. CASA, Airservices (Aviation Information Centre) and ATSB all have excellent web sites.

Please ensure you fully cite any web references you use in your assignments and the date on which you referenced the material.

For this course the following websites are particularly relevant: CASA (www.casa.gov.au) Airservices (www.airservicesaustralia.com) and ATSB (www.atsb.gov.au) all of which have references to other related and useful websites. Please ensure you fully cite and web references you use in your assignments.

Also helpful is the Australian Legal Information Institute website <http://www.austlii.edu.au> is a joint UNSW and UTS law faculty database of legislation and case law and is an extremely useful research and reference site.

Where reference is made to a particular website or to research topic on the internet the following symbol will appear.



Please research this topic:

As a final comment, it is most important with any research but in particularly with online research, that the reference source be verified and checked to ascertain its accuracy and authenticity. Obviously the official websites of governments, educational institutions, agencies and reputable organisations are usually the best and most reliable source of information but most references still need to be checked for currency—especially in relation to legislation.

Studying and Research

To supplement the course materials reference to particular sections of *Aviation Law in Australia (Fourth edition)* will be made. The following symbol



Please read your textbook:

Note: Reference is to paragraph numbers of the fourth edition of the prescribed text. Earlier editions may also address the subject matter. For example: “Please read your textbook at paragraphs [1.55]-[1.60]” is reference to paragraphs 1.55 and 1.60 (inclusive) in Chapter 1, Fourth Edition.

Learning and Teaching Philosophy

This course aims to provide an academic environment in which students are actively engaged in the learning process. The course aims to be interesting, challenging and enjoyable. Activities are linked to both research and scholarship, and the real world, and allow students to reflect on how system safety issues affect them and others in the aviation industry. Student diversity in terms of experiences and learning styles is valued. 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.

Teaching Strategies

The Master of Science and Technology in Aviation and its associated programs, the Graduate Certificate in Aviation Management and the Graduate Diploma in Aviation Management, are offered through distance education and have been specifically designed for students who are unable to attend weekly sessions at the university. The MScTech (Aviation)/MAvMgmt is targeted towards professionals and managers who work in aviation related environments.

Assessment

The MScTech (Aviation)/MAvMgmt Program's approach to assessment closely follows that of the Australian Open Learning Program of the Australian Graduate School of Management. At all times assessment is intended to form a component of the learning process and assignments are designed to encourage you to apply what you learn to your own organisation. Assignments will be assessed on the basis of how you apply course material to gaining new insight into your organisation. Written comments will accompany your return assignments and exercises and should provide useful feedback. The examination will provide you and us with feedback about your comprehension of the course content.

The timing of the various assessment tasks is shown below. You will notice that an attempt has been made to stagger the due dates for assignments and the examination in order to avoid peaks in your workload as much as possible.

Note: Assignments are made up from the various *Exercises* in the respective Units

Criteria for assessment

Unless otherwise specified, the following criteria will be applied in assessing your written work:

- evidence of understanding of the safety-related concepts, theories and ideas developed in the course;
- ability to apply these concepts to aviation-related situations from your own experience;
- capacity to structure an exercise or assignment logically and limit it to the length required;
- degree to which the material submitted for assessment addresses the specified assignment requirements.

Informal feedback

As well as the formal assessment procedure, every attempt will be made to give informal feedback during the instruction sessions. This might consist of students swapping exercises to comment on each others work, or it might consist of group discussion. It is essential that all the set exercises be attempted in order to achieve a satisfactory level of understanding of the basic concept of the course.

Course Schedule

The course comprises of 12 units to match the course duration of 12 weeks.

Unit 1	Assessing Aviation Safety
Unit 2	Safety Data Analysis
Unit 3	Accident Causation
Unit 4	Safety Regulatory Authorities
Unit 5	Safety Management
Unit 6	Human Factors
Unit 7	Crew Resource Management
Unit 8	Technology, Design and Maintenance
Unit 9	Air Traffic Systems
Unit 10	Airport Operations
Unit 11	Air Safety Investigation
Unit 12	The New Millennium

Academic Honesty and Plagiarism

Plagiarism is the presentation of the thoughts or work of another as one's own¹. Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;

¹ Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle.

- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.²

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does not amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The *Learning Centre* website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at:

<https://student.unsw.edu.au/plagiarism>

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

1. correct referencing practices;
2. paraphrasing, summarising, essay writing, and time management;
3. appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

Open book examinations and plagiarism

Open book examinations are examinations which allow students to refer to notes/texts/etc to assist in preparing answers. They allow students, in effect, to research answers during examinations. Students in open book examinations are, however, expected to submit their own work as answers to examination questions. Students in open book examinations who merely copy portions of notes/texts into their answers rather than submitting their own work are plagiarising or stealing the

² Adapted with kind permission from the University of Melbourne.

copied material and will receive no marks for such answers and, in addition, will be subject to the University sanctions for plagiarism.

Continual Course Improvement

Periodically, student evaluative feedback on the course is gathered, using among other means, the University's Course and Teaching Evaluation and Improvement (CATEI) Process. Student feedback is taken seriously, and continual improvements are made to the course based in part on such feedback. Significant changes to the course will be communicated to subsequent cohorts of students taking the course.

Student feedback

Throughout the course I actively encourage any feedback from students in respect to any component of this course. Your comments are important and assist me to make improvements for future courses. Also I encourage you to complete the UNSW student survey which will be made available during week 11 of this course.

Administrative Matters

Students should be familiar with the information contained in <https://my.unsw.edu.au> regarding expectation of students, enrolment, fees and other policies that affect you. Also students must be familiar with the information provided in the Postgraduate Aviation Student Guide. This essential document can be obtained from the School of Aviation and is available on UNSW Moodle. Please contact Jamie Lim at aviam@unsw.edu.au for any administrative enquiries.