

AIRCRAFT ACCIDENT INVESTIGATION SYLLABUS

Course Title:	Aircraft Accident Investigation	Units: 6
Term Dates:	September 12 – October 17, 2011	Term: Fall 2011
Instructor:	Terry R. Lowe	
Email Address:	TGLowe@cox.net	
Home Phone:	(757) 603-6229	
Availability:	Before or after class	
Class Location:	Wightman Cup Room, W&M Hall	
Day/Time Held:	Mondays, 1:30 P.M. to 3:30 P.M.	
Course Text:	<i>Aircraft Safety: Accident Investigations, Analyses & Applications</i> (2 nd Edition), Shari Krause, ISBN: 9770071409742	

COURSE DESCRIPTION

This course is an overview of commercial and military aircraft accident investigation. The organization, duties, and procedures of aircraft accident boards are analyzed. Processes are explored for determining accident causes by trained accident investigators and specialized laboratories. Discussion includes reporting procedures and the important follow-up work designed to avoid related aircraft accidents. Case studies and videos will provide examples of actual accidents, findings, and corrective actions.

COURSE GOALS

Students will be introduced to key roles and responsibilities of agencies in the process, as well as other parties involved. They will comprehend the importance of aircraft accident investigation to the significant improvement in aviation safety.

COURSE LEARNING OUTCOMES:

Upon course completion, each student should have a basic understanding of:

1. Key aircraft accident investigation definitions, principles, and concepts.
2. The National Transportation Safety Board and evolution of aircraft accident investigation.
3. Other organizations conducting aircraft accident investigations in the United States.
4. Primary actions of investigators at an aircraft accident site.
5. Techniques and procedures for photographing an aircraft crash site.
6. Techniques to record evidence discovered at an aircraft crash site.
7. Techniques and procedures for interviewing witnesses to an aircraft accident.
8. Techniques and rationale for determining factors in an aircraft accident.

SUPPLEMENTAL RESOURCES:**Internet Resources**

Airline Crash and Research Site	http://www.d-n-a.net/users/dnetGOjg/Research.htm
Australian Aviation Safety:	http://www.dot.gov.au/programs/basi/basihome.htm
Aviation Accident Facts and Reports	http://www.natcavoiced.org/av/avs/avs.htm
Aviation Safety	http://www.dot.gov/by/air.htm
Aviation Safety Connection:	http://www.aviation.org
Aviation Safety Data	http://www.safetydata.com
Aviation Safety Network	http://www.aviation-safety.net/index.php
Boeing Statistical Summary	http://www.boeing.com/news/techissues/pdf/statsum.pdf
Canadian Aviation Safety Board	http://www.bst-tsb.gc.ca
FAA Aviation Safety Program	http://www.faa.gov/avr/news/asphome.html
FAA Human Factors	http://www.hf.faa.gov
FAA Safety News Releases	http://www.faa.gov/apa/safety.htm
Flight Safety Foundation	http://www.flightsafety.org
Int'l Society of Air Safety Investigators	http://www.isasi.org
NASA Human Factors	http://www.olias.arc.nasa.gov
National Transportation Safety Board	http://www.nts.gov
Office of Aviation Safety	http://www.oas.gov
Safe Skies	http://www.safe-skies.com
United States Air Force Safety Center	http://www.afsafety.af.mil
United States Army Safety Center	http://www.safety.army.mil
United States Navy Safety Center	http://www.safetycenter.navy.mil

Other Resources

- Adair, B. (2002). The Mystery of Flight 427: Inside a Crash Investigation. Smithsonian.
- Barlay, S. (1990). The Final Call: Why Airline Disasters Continue to Happen. Pantheon.
- Chiles, J. (2002). Inviting Disaster: Lessons from the Edge of Technology. Harper.
- Cobb, R. and Primo, D. (2003). The Plane Truth: Airline Crashes, the Media, and Transportation Policy. Brookings.
- Gero, D. (1999). Military Aviation Disasters. Haynes.
- Job, M. (1994-2001). Air Disaster, Volumes 1-4. Aerospace Publications.
- National Transportation Safety Board, Selected Accident Files
- Oster, C. (1992). Why Airplanes Crash: Aviation Safety in a Changing World. Oxford.
- Owen, D. (2001). Air Accident Investigation. Haynes.
- Strauch, B. (2004). Investigating Human Error: Incidents, Accidents, and Complex Systems. Ashgate.
- Watson, T. (1992). Unhappy Landings: Why Airplanes Crash. Harbor City Press.
- US Codes, Part 800 and 830, applying to the NTSB Accident Investigation.

COURSE SCHEDULE

#	<u>Class Date / Learning Content Source</u>	<u>Reading Assignment</u>
1	<u>September 12, 2011</u> Introduction Terms and Concepts Accident Causation 5-M Model Accident Investigation Basics United States Investigations International Investigations Video: <i>Crash Detectives</i>	Syllabus
2	<u>September 19, 2011</u> Field Investigations Accident Photography Accident Diagrams Wreckage Distribution Video: <i>American Airlines #1420</i>	AA #1420 (pages 57-61)
3	<u>September 26, 2011</u> Structural Investigation Case Study: <i>F-117 Air Show</i> Powerplant Investigation Aircraft Systems Investigation Fire Investigation Video: <i>Swissair #111</i>	ValuJet #592 (pages 424-435)
4	<u>October 3, 2011</u> Cockpit Instruments Light Bulb Analysis Environmental Factors Runway Accidents Video: <i>United Airlines #232</i>	UAL #232 (pages 445-456)

CHRISTOPHER WREN ASSOCIATION

- 5 October 10, 2011 PSA #182 (pages 389-396)
Mid-Air Collisions
Case Study: *Pacific Southwest Airlines #182 and Cessna 172*
Accident Record Collection
Aircraft Recorders
Air Traffic Recorders
Operations and Maintenance Factors
Video: *Air Transat #236*
- 6 October 17, 2011 Pan Am and KLM (pages 199-210)
Human Factors
Video: *Pan Am #1736 and KLM #4805*
Threat and Error Management
Witnesses
Video: *CIA Report on TWA #800*
Aircraft Accident Reports
Conclusion