
AVIA 374: Aviation Sustainability

Course Outline: SEM 001 / Winter 2019

1. Course Information:

1.1 Class Location and Time:

Room: RCH 208

Lectures: Wednesdays 8:30-11:20am

1.2 Contact Information:

Instructor: Dr. Suzanne Kearns

Office: EV1-238

Office Hours: Monday 11:30-1:30 (or by appointment)

Phone: x32789

Email: suzanne.kearns@uwaterloo.ca

2. Course Description:

This course is an advanced exploration of how aviation sustainability is sought within the aviation industry. The course will take a cross-sectional approach to the industry, exploring the various sectors that make up the air transport system (air law, aircraft, operations, navigation, airports, and safety among others). A key element is the analysis of sustainable development goals in relation to various sectors of aviation. The focal point of the course is on understanding the nature of and issues associated with aviation sustainability.

3 hours lecture, 0.5 course

Prerequisite: AVIA 310 or professor consent

3. Textbook & Additional Expense

3.1 TBD – Readings will be recommended by the instructor and made available through Learn

4. Outcomes and Format

- Course Objectives
 - To become aware of sustainable development goals
 - To be able to critically analyze, discuss, and make presentations regarding aviation sustainability, associated with various sectors of the aviation industry
 - Course format
 - The course will be organized as a combination of lecture, case analysis, group discussion, group activities, and student presentations.

5. Evaluation

5.1 Class Attendance: A crucial element of this course is the sharing of ideas and opinions. Since each of us brings a unique background of experiences, much can be learned from class debate and discussion. Participation will account for 10% of your final grade.

Absences: All absences will impact your participation grade. As a rule of thumb, you can expect each absence to subtract 10% of your participation grade. For medical absences, refer to the policy on accommodation for medical illness. If you have a valid excuse for an absence you must inform the instructor *before* the intended date. It is the instructor's discretion whether or not to excuse an absence, based on University policy.

5.2 In-Class Presentations: Throughout the course you will be learning various approaches used by aviation to promote aviation sustainability. After the instructor has presented a few themes for consideration, (either as an individual or in a small group, depending on class size) you will be required to make a presentation to the class that analyzes how that theme impacts and is impacted by sustainable development goals (SDGs). You will be expected to demonstrate an advanced understanding of the sustainability goals, skillfully apply classroom content the goals your group is considering, and present a conclusion that industry sectors impact on sustainability. Your presentation is expected to be 20 minutes in duration, plus a 10-minute class activity, and a 10-minute guided discussion (for a total of 40 minutes). The presentation should use best practices in presentation materials and professionalism, incorporate audience interaction, and minimal/no use of note cards for reference. If a group presentation, all members of your group must substantially contribute to the presentation. The goal of the assignment is to give you an opportunity to practice making a professional presentation as well as to become highly familiar with the various sustainability themes used in the aviation industry. In summary, for each presentation, your group must submit the following through LEARN: 1) slides used in the presentation, 2) copies of any handouts/activities/games, 3) an outline including at least 10 guided discussion questions used in the presentation, and 4) group assignment disclosure (please embed/scan this document as the final page in your written analysis). Additional details will be provided in class. The presentation will account for 30% of your grade in the course.

5.3 Design Challenge: The final culminating experience in this course is the analysis of a real-world sustainability challenge from airport operations. Problem statements will be given to student groups at the beginning of the semester, from an industry partner. As we move through the semester, student groups are asked to continually explore new sustainability themes/approaches and consider how they apply to their problem. A mid-semester in-class presentation will allow student groups the opportunity to present preliminary ideas regarding the design challenge for feedback. The final design challenge presentations will take place during the last class of the semester, during which time representatives will attend class to serve as judges. Student groups will present the solutions to their design challenge to the judges, who will determine which group did the best job addressing the safety issues and award a prize.

The following deliverables are required:

- Mid-Semester design project presentation (presented to instructor only, not to other students in the class) on Week 8 (**15% of course grade**)
 - 10 minute presentation for each problem statement
 - 2-3 page executive summary of issue, plus references list, for each problem statement

- Prepared to discuss topic with instructor and collectively decide which problem statement to focus on for remainder of the semester.
- Due Week 10 (**20% of course grade**)
 - 5-page written analysis of problem statement due to instructor
 - *5 pages of content, references and title page will be in addition to this total
- Due Week 12 (**25% of course grade**)
 - Final 10-minute presentation for one problem statement presented to judges
 - 1 page executive summary of problem statement and analysis

Evaluation Item	Percentage of Course Grade
5.1 Class Attendance	10%
5.2 In-Class Presentations	30%
5.3 Design Challenge	60%
<i>Mid-Semester Presentation</i>	<i>15%</i>
<i>5-Page Written Analysis</i>	<i>20%</i>
<i>Final Presentation & 1-Page Executive Summary</i>	<i>25%</i>

Hard-copy print outs of assignments and/or essays are due on the dates indicated. Any assignments turned in late will incur a 10% late penalty per day. There are no exceptions to this policy. If you are unable to turn in the assignment on the due date, you may ask another student to turn it in on your behalf. Electronic/emailed versions of assignments will not be accepted.

Students are responsible for material covered in the lectures as well as the assigned chapters/readings. The midterm examination will be in class time. The final exam will be scheduled during the exam period. Exams will not be returned to students but may be reviewed in the instructor's office.

Students are **REQUIRED TO COMPLETE ALL COMPONENTS** of this course. There are no exceptions to this. Extra assignments to improve grades will **NOT** be allowed.

Exams will be scored using the program Scan Exam which examines the answer sheets for unusual coincidences in the pattern of answers given which may be indicative and used as supporting evidence of cheating.

Grades will **not** be adjusted on the basis of need. It is important to monitor your performance in the course. Remember: *You* are responsible for your grades in this course.

6. Lecture Schedule

Lecture – Wednesdays 8:30-11:20am

Week 1 – January 9, 2018

- What is sustainable aviation – key themes, sustainable development goals, etc.

Week 2 – January 16, 2018

- Air law – role of ICAO in aviation sustainability and initiatives, CORSIA, and highlights of regulations internationally

Week 3 – January 23, 2018

- Airports – master planning, ops, initiatives

Week 4 – January 30, 2018

- Aircraft – role of aircraft manufacturers, engine design, and maintenance.

Week 5 – February 6, 2018

- (Potential Guest Speaker – Details to be Confirmed)

Week 6 – February 13, 2018

- *Student Presentations – An SDG that is positively/negatively impacted by air law, airports, or aircraft.*

Week 7 – February 27, 2018

- Operations – General Aviation, airlines, and management decisions

Week 8 – March 6, 2018

- *Design Project Mid-Semester Presentations*

Week 9 – March 13, 2018

- Air Navigation – performance-based navigation, route choice and timing (impacts on noise and exhaust, etc.)

Week 10 – March 20, 2018

- Remotely piloted aircraft (drones) – as an avusust enabler, burden, and role of propulsion and materials

Week 11 – March 27, 2018

- *Student Presentations – An SDG that is positively/negatively impacted by operations, air navigation, or drones.*

Week 12 – April 3, 2018

- *Final student design project presentations*

7. University Policies Related to Assignments, Tests, and Final Exams

Intellectual Property:

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);

- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

Academic Integrity:

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. The University's guiding principles on academic integrity can be found here: <http://uwaterloo.ca/academicintegrity>. ENV students are strongly encouraged to review the material provided by the university's Academic Integrity office specifically for students: <http://uwaterloo.ca/academicintegrity/Students/index.html>

Students are also expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions. Students who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. Students may also complete the following tutorial: <https://uwaterloo.ca/library/get-assignment-and-research-help/academic-integrity/academic-integrity-tutorial>

When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline: <https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71>. Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, Student Grievance: <https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70>

Note for students with disabilities: AccessAbility Services, located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Mental Health: The University of Waterloo, the Faculty of Environment and our Departments/Schools consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges - physical and / or emotional. **Please note that help is available.** Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services <http://www.uwaterloo.ca/counselling-services> is an inclusive, non-judgmental, and confidential space for anyone

to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

Religious Observances: Students need to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. See Policy 70 - Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please contact your Undergraduate Advisor for details.

Appeals: A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm

Unclaimed assignments:

Unclaimed assignments will be retained for one month after term grades become official in quest. After that time, they will be destroyed in compliance with UW's [confidential shredding procedures](#).

Communications with Instructor and Teaching Assistants:

All communication with students must be through either the student's University of Waterloo email account or via Learn. If a student emails the instructor or TA from a personal account they will be requested to resend the email using their personal University of Waterloo email account.

Turnitin: Text matching software (Turnitin®) may be used to screen assignments in this course. This is being done to verify that use of all materials and sources in assignments is documented. To better understand the meaning of 'similarity' in Turnitin, see https://guides.turnitin.com/01_Manuals_and_Guides/Student/Classic_Student_User_Guide/17_Similarity_Check#Viewing_an_Originality_Report.

Students will be given an option if they do not want to have their assignment screened by Turnitin®. In the first week of the term, details will be provided about arrangements and alternatives for the use of Turnitin® in this course.

Recording lectures:

- o Use of recording devices during lectures is only allowed with explicit permission of the instructor of the course.
- o If allowed, video recordings may only include images of the instructor and not fellow classmates.
- o Posting of videos or links to the video to any website, including but not limited to social media sites such as: facebook, twitter, etc., is strictly prohibited.

Co-op interviews and class attendance: Co-op students are encouraged to try and choose interview time slots that result in the least amount of disruption to class schedules. When this is challenging, or not possible, a student may miss a portion of a class meeting for an interview. Instructors are asked for leniency in these situations; but, a co-op interview does not relieve the student of any requirements associated with that class meeting. When a co-op interview conflicts with an in-class evaluation mechanism (e.g., test, quiz, presentation, critique), class attendance takes precedence and the onus is on the student to reschedule the interview. CECA provides an interview conflict procedure to manage these situations.

Students will be required to provide copies of their interview schedules (they may be printed from WaterlooWorks) should there be a need to verify class absence due to co-op interviews.

Important Dates: Please refer to <https://uwaterloo.ca/quest/undergraduate-students/important-dates/2017-2018>

8. Other Information

- Bring student identification to exams.
- Nothing is to be on/at one's desk during an exam except a pencil, an eraser, and the individual's student card
- Do not wear baseball caps to exams
- Do not bring music players, cell phones, beepers, or other electronic devices to exams

9. FREQUENTLY ASKED QUESTIONS

Question	Answer
How can I succeed in this course?	Attend class, complete homework, focus on understanding the principles in a way that lets you apply them to new situations.
When will the exam grades be posted?	Grades are posted on Learn when they become available.
There is so much material. How can I possibly remember everything?	You do not need to remember everything. You need to understand the fundamental principles and how to apply them.
I need a certain mark to maintain a scholarship, this mark will prevent me from getting accepted to graduate school, I tried really hard but got a bad mark.	Grades reflect the work you contributed to the course.

10. Group Assignment Disclosure

Group Assignment Disclosure

Please read the disclosure below following the completion of your group assignment. Once you have verified these points, hand in this signed disclosure with your group assignment.

1. All team members have referenced and footnoted all ideas, words or other intellectual property from other sources used in the completion of this assignment.
2. A proper bibliography has been included, which includes acknowledgement of all sources used to complete this assignment.
3. This is the first time that any member of the group has submitted this assignment or essay (either partially or entirely) for academic evaluation.
4. Each member of the group has read the full content of the submission and is assured that the content is free of violations of academic integrity. Group discussions regarding the importance of academic integrity have taken place.
5. Each student has identified his or her individual contribution to the work submitted such that if violations of academic integrity are suspected, then the student primarily responsible for the violations may be identified. Note that in this case the remainder of the team may also be subject to disciplinary action.

Course: _____

Assignment: _____

Date: _____

Name (print)	Signature	Section Contributed	Section Edited