



## International Summer Program 2020

<b>Course Title</b>	Aviation and Environment
<b>Your Instructor</b>	Name: Frank Fichert (Prof. Dr.) Home Institution: Worms University of Applied Sciences, Germany Email: fichert@hs-worms.de
<b>Course Meetings</b>	June 29 – July 17, 2020 Monday to Thursday: 09:00~12:30 / Friday: 11:30~12:30
<b>Classroom</b>	TBA

<b>Course Overview</b>	<p>The environmental effects of air transportation are increasingly recognized as a major challenge for the air transport industry. Therefore, it is important that future decision makers are aware of the different effects of aviation on the environment, and that they are able to implement suitable measures to mitigate these effects. This course consists of three major sections:</p> <ol style="list-style-type: none"><li>(1) Environmental effects of air transport – noise, local pollutants, greenhouse gas emissions</li><li>(2) Principles of environmental economics and environmental management</li><li>(3) Policy framework and mitigation measures (noise, pollutants, greenhouse gas emissions)</li></ol> <p>The course is highly interdisciplinary, covering topics from natural sciences (e.g., effects of aviation's emissions on climate change), economics (e.g., working of an emissions trading scheme), management (e.g., environmental management and corporate social responsibility), and law (e.g., ICAO framework). Moreover, practical examples from different stakeholders (airlines, airports, policy makers) will be used throughout the course.</p>
<b>Course Materials</b>	<p>PDF or PowerPoint versions of the lecture slides as well as dedicated learning material will be made available via an online source before class.</p> <p>In addition, students will receive excerpts of selected regulations and reports (e.g., ICAO Annex 16; sustainability reports of industry associations, airlines, and airports) and suggestions for further (voluntary) reading</p>

<b>Evaluation</b>	Final test 50%, Participation 20%, Assignments 30%.
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<b>Grading Scale</b> <i>(Do not change)</i>	<b>Grading Scale</b>					
	Points	Grade	GPA	Points	Grade	GPA
	95 or Above	A+	4.5	75 or Above	C+	2.5
	90 or Above	A0	4.0	70 or Above	C0	2.0
	85 or Above	B+	3.5	65 or Above	D+	1.5
	80 or Above	B0	3.0	60 or Above	D0	1.0
				59 or Below	Fail	0
★ <i>Students will get a F if they miss more than ¼ course loads.</i>						

*Please continue to the next page for the course calendar.*

## Course Calendar

	<b>Dates</b>	<b>Class Hours</b>	<b>Subject</b>
Lecture 1	June 29 (Monday)	09:00~12:30	Introduction and course overview I. Environmental effects of aviation I.1. Aircraft noise (definition and determinants)
Lecture 2	June 30 (Tuesday)	09:00~12:30	I.2. Local pollutants I.3. Greenhouse gas emissions (CO <sub>2</sub> and Non-CO <sub>2</sub> )
Lecture 3	July 1 (Wednesday)	09:00~12:30	II. Principles of environmental economics (externalities, damage costs, abatement costs)
Lecture 4	July 2 (Thursday)	09:00~12:30	III. Mitigation measures III.1 Noise mitigation (active noise mitigation – ICAO standards; night curfews and other operational restrictions)
Lecture 5	July 3 (Friday)	11:30~12:30	Presentation and discussion of first assignment
Lecture 6	July 6 (Monday)	09:00~12:30	III.1 Noise mitigation (active noise mitigation – Financial incentives; passive noise mitigation)
Lecture 7	July 7 (Tuesday)	09:00~12:30	III.2 Local pollutants (ICAO standards, financial incentives, ground traffic)
Lecture 8	July 8 (Wednesday)	09:00~12:30	III.3 Greenhouse gas emissions (ICAO standards, taxation, voluntary carbon offsets)
Lecture 9	July 9 (Thursday)	09:00~12:30	III.3 Greenhouse gas emissions (EU ETS, CORSIA)
Lecture 10	July 10 (Friday)	11:30~12:30	Presentation and discussion of second assignment
Lecture 11	July 13 (Monday)		Field Trip
Lecture 12	July 14 (Tuesday)	09:00~12:30	IV. Integrated environmental management concepts for airlines and airports
Lecture 13	July 15 (Wednesday)	09:00~12:30	Summary and preparation for final test
Lecture 14	July 16 (Thursday)	09:00~12:30	Final Test
Lecture 15	July 17 (Friday)		Graduation