

**TRAIL basic course program**

(versie 12 December 2023)

		<i>From 1 January 2024</i>	<i>Till 31 December 2023</i>			
	ECTS <sup>2</sup>	TUD GS credits <sup>2,3</sup>	TUD GS credits <sup>2,3</sup>	By	Part <sup>1</sup>	TUD GS category <sup>4</sup>
Introduction to TRAIL and the PhD student process (0.5d) <sup>0</sup>	0,25	0.5	0.5	TRAIL	S	discipline/ research
<b>I TRAIL Basic Courses</b>	<b>ECTS <sup>2</sup></b>	<b>TUD GS credits <sup>2,3</sup></b>	<b>TUD GS credits <sup>2,3</sup></b>	<b>By</b>	<b>Part <sup>1</sup></b>	<b>TUD GS category <sup>4</sup></b>
Fundamental Knowledge on Transport, Infrastructure & Logistics (4d) <sup>5</sup>	1 - 4	3 - 5	4 - 5	OML <sup>6</sup>	D	discipline
TRAIL Theories and Methods (3d) <sup>5</sup>	1 - 3	3 - 4.5	3 - 5	TRAIL	T, M	discipline/ research
<b>II General TRAIL Courses</b>	<b>ECTS <sup>2</sup></b>	<b>TUD GS credits <sup>2,3</sup></b>	<b>TUD GS credits <sup>2,3</sup></b>	<b>By</b>	<b>Part <sup>1</sup></b>	<b>TUD GS category <sup>4</sup></b>
TRAIL Writing a Literature Review in the TIL Domain (2d)	1 - 4	3 - 5	2 - 5	OML	S	discipline/ research
Machine Learning (4d)	1 - 4	3 - 5	4 - 5	OML	M	discipline/ research
TRAIL Data-analysis and Statistics (3d)	1 - 3	3 - 5	3 - 5	TRAIL	S	discipline/ research
Societal Relevance of your PhD Research (1d)	0.25 - 1	0.5 - 2	0.5 - 2	TRAIL	S	discipline/ research
Writing and Publishing a Research Article (1d)	0.25 - 1	0.5 - 2.5	1 - 2	OML	S	discipline/ research
Discrete Choice Analysis: micro-econometrics and machine learning approaches (4d)	2	4	3	TRAIL	T	discipline/ research
Stated Choice Data Collection (1,5)	1	2.5	2	TRAIL	M	discipline/ research
From Horse to Porsche: innovations in transport and logistics (1d) */ **	0.5 - 1	1 - 2	1 - 2	TRAIL	D	discipline/ research
Capita selecta: How to Write a Review Report (1d)	1	2	1	OML	S	discipline
<b>III TRAIL Specialisation Courses</b>	<b>ECTS <sup>2</sup></b>	<b>TUD GS credits <sup>2,3</sup></b>	<b>TUD GS credits <sup>2,3</sup></b>	<b>By</b>	<b>Part <sup>7</sup></b>	<b>TUD GS category <sup>4</sup></b>
Capita selecta - Reinforcement Learning for Operations Management (2d)	4	4		OML	L	discipline
Traffic Flow Operations and AI (3d)	1 - 2	2 - 4	2 - 3	TRAIL	I	discipline
Behavioural Aspects in Transport (1d)	0.5 - 1	1 - 2	1 - 2	TRAIL	I	discipline
Transport Logistics Modelling (4d)	1 - 4	3 - 5	4 - 5	OML	L	discipline/ research
Facility Logistics Management (4d)	1 - 4	3 - 5	4 - 5	OML	L	discipline
Quantitative Modelling and Analysis of Supply Chains (4d)	1 - 4	3 - 5	4 - 5	OML	L	discipline/ research
Advanced Inventory Theory (4d)	1 - 4	3 - 5	4 - 5	OML	L	discipline
Freight Transport Management (4d)	4	5	4 - 5	OML	L	discipline
Passenger Transport Systems (4d)	1 - 4	3 - 5	4 - 5	OML	L	discipline
Logistics Planning (4d)	1 - 4	3 - 5	4 - 5	OML	L	discipline
Revenue Management (2d)	0.5 - 2	1 - 4	2 - 3	OML	L	discipline
Capita selecta – various (2d) <sup>8</sup>	0.5 - 2	1 - 4	2 - 3	OML	L	discipline/ research
<b>IV TRAIL Summer School</b>	<b>ECTS <sup>2</sup></b>	<b>TUD GS credits <sup>2,3</sup></b>	<b>TUD GS credits <sup>3</sup></b>	<b>By</b>	<b>Part <sup>7</sup></b>	<b>TUD GS category <sup>4</sup></b>
2018 – Automated Driving (5d)	1 - 2	5	5	TRAIL	D	discipline
2019 – Cycling in Cities (5d)	1 - 2	5	5	TRAIL	D	discipline
2020 – Automated Driving (3d)	1	3	3	TRAIL	D	discipline
2021 – Cycling in Cities (3d)	1	2	2	TRAIL	D	discipline
2022 – Automated Driving (3d)	1	2	2	TRAIL	D	discipline
2021 – Cycling in Cities (3d)	1	2	2	TRAIL	D	discipline

Yearly

Every 1.5 years

Every 2 years

\* = Up till 2019: ECTS 1 -2 / GS 1 – 3

\*\* = \*\* 2021: ECTS 1 – 1.5 / GS 1 -2

<sup>0</sup> Between brackets number of course days

<sup>1</sup> D= Domain Knowledge

T = Theory

M = Methodology

S = Skills

<sup>2</sup> First number = participated in course – second number = participated in course & passed assignment/exam

<sup>3</sup> The Promotor decides about the number of TUD GS credits to be administered in DMA

<sup>4</sup> PhD student can choose either category, since TRAIL ‘methodology’ and ‘skills’ courses are strongly linked to the TRAIL ‘discipline’

<sup>5</sup> Mandatory courses for the TRAIL Diploma

<sup>6</sup> OML: Courses given by TRAIL and Research School Beta within the Graduate Program Operations Management and Logistics (GP-OML).

<sup>7</sup> T: Transport, I: Infrastructure, L: Logistics

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