Instructions on the final examination

Task

The final examination is a written research proposal. You are free to choose a research topic that aligns with your interests. The methodology in your research proposal must incorporate computational tools and techniques, such as machine learning models or data visualization tools. The objective of this assignment is to demonstrate your understanding of the course material. The proposal should be concise, with a maximum length of one page (excluding references).

Your proposal should include the following components: a brief literature review summarizing the current state of knowledge in your chosen field, clear research questions, a detailed methodology section incorporating computational tools and techniques, and a discussion of the limitations of the methods you have chosen.

Structure

It is recommended that you follow the structure below.

1st paragraph (introduction/literature review): Introduce the problem your research aims to solve and explain its significance in the context of current knowledge in the field. This introduction paragraph should provide a brief literature review of the background information, highlighting the gap or challenge that your research will address. Be sure to include citations from reliable sources to support the relevance and importance of the problem.

2nd paragraph (research questions): Present your research question(s), limiting them to no more than three. Each research question should be clearly articulated, and if applicable, you should also outline any hypotheses that you intend to test. These questions and hypotheses should directly relate to the problem introduced in the first paragraph.

3rd paragraph (methodology): Describe the methodology and data sources you will use to answer your research questions. Specify the computational tools and techniques you will employ, such as data collection methods, analysis techniques, and software applications. Detail each step of your approach.

4th paragraph (limitations): Discuss the limitations of your chosen methods. Consider potential biases, data limitations, and the assumptions inherent in your computational methods. Explain how these limitations might affect the validity or reliability of your results and what steps you could take to mitigate these challenges.

5th paragraph (contributions): Conclude by explaining how your research can advance knowledge in the field you have identified. Discuss the potential implications of your findings,

how they might contribute to theoretical understanding, practical applications, or future research directions. Highlight the unique value your research brings to the field and how it could inspire further investigation or influence practice.

Timeframe

Time will be set aside during the last few class sessions to work on your proposal, during which we will be happy to help with any questions you may have. The deadline for submission is February 14, 2025. Please email a PDF copy of your proposal to cai@verkehr.tu-darmstadt.de.

Evaluation

The following criteria are used for the evaluation of your research proposal.

Literature review (20 points, 20%)	
Very Good (18–20 points)	Offers a logical argument supported by a coherent review of literature. Demonstrates how existing studies informs the proposed research and uses all sources appropriately.
Good (15–17 points)	Presents a clear argument with some sources appropriately used, but lacks depth or insights.
Satisfactory (12–14 points)	Provides a general literature review but lacks coherence and depth.
Fair (10–11 points)	Minimal engagement with literature, few connections to the research question.
Fail (0–9 points)	Little or no use of literature; logical flow is absent.
Research questions (20 points, 20%)	
Very Good (18–20 points)	Clearly states well-defined research question(s), appropriate in scope and relevance. Provides clear descriptions for non-expert audiences and adopts an appropriate academic tone.
Good (15–17 points)	Research question is defined but may need more precision or scope adjustment.
Satisfactory (12–14 points)	Research question is present but lacks clarity or depth.
Fair (10–11 points)	Purpose is implied, but the question is vague.
Fail (0–9 points)	Research question is missing or completely unclear.
Methodology (20 points, 20%)	
Very Good (18–20 points)	Clearly outlines methodology, incorporating computational methods. Describes the data sources and process in a way that can be replicated by others.
Good (15–17 points)	Includes a sound methodology but lacks some details about computational tools or replicability.
Satisfactory (12–14 points)	Methodology is described, but some steps are missing or unclear.

Fair (10–11 points)	Methodology is unclear or too vague.
Fail (0–9 points)	No clear methodology provided.
Limitations (20 points, 20%)	
Very Good (18–20 points)	Clearly identifies the study's limitations. The limitations are logical and well-argued.
Good (15–17 points)	Clearly identifies limitations but lack depth.
Satisfactory (12–14 points)	Limitations are mentioned but are not well-argued.
Fair (10–11 points)	Limitations are mentioned but are illogical.
Fail (0–9 points)	Limitations are missing.
Writing (20 points, 20%)	
Very Good (18–20 points)	Writing is clear, concise, and well-organized with a logical flow. Minimal errors in grammar, punctuation, or spelling.
Good (15–17 points)	Writing is mostly clear and organized, with few errors. The argument generally flows well, though some transitions may be weak.
Satisfactory (12–14 points)	Writing is understandable but contains several errors. Structure is logical but may lack coherence in places.
Fair (10–11 points)	Writing is often unclear with frequent errors. The structure is disjointed.
Fail (0–9 points)	Writing is unclear and difficult to follow due to many errors. Lacks logical flow.

The total points are converted to grades according to the table below.

Points	**Grade**	**Percentage**
95–100	1.0	95 - 100%
90–94	1.3	90 - 94%
85–89	1.7	85 - 89%
80–84	2.0	80 - 84%
75–79	2.3	75 - 79%
70–74	2.7	70 - 74%
65–69	3.0	65 - 69%
60–64	3.3	60 - 64%
55–59	3.7	55 - 59%
50–54	4.0	50 - 54%
0–49	5.0	0 - 49%