

## Grading Rubric for AAE 520: Experimental Aerodynamics

Category	A (Exceptional)	B (Very Good)	C (Satisfactory)	D (Needs Improvement)	F (Unsatisfactory)
Introduction (10 points)	9-10	8-9	7-8	6-7	0-6
Experimental Setup (10 points)	9-10	8-9	7-8	6-7	0-6
Methodology (20 points)	18-20	16-18	14-16	12-14	0-12
Data Collection and Analysis (20 points)	18-20	16-18	14-16	12-14	0-12
Results and Discussion (20 points)	18-20	16-18	14-16	12-14	0-12
Conclusion (10 points)	9-10	8-9	7-8	6-7	0-6
Clarity and Organization (10 points)	9-10	8-9	7-8	6-7	0-6
Creativity and Innovation (Bonus 5 points)	5	4	2-3	1	0

## Category Descriptions

1.	<b>Introduction (10 points):</b>	<ul style="list-style-type: none"><li>Clearly states the objective of the experiment.</li><li>Provides background information on relevant fluid dynamics concepts.</li><li>Includes a concise literature review.</li></ul>
2.	<b>Experimental Setup (10 points):</b>	<ul style="list-style-type: none"><li>Describes the apparatus and instruments used in the experiment.</li><li>Includes details on measurement techniques and accuracy.</li><li>Addresses potential sources of error and how they were mitigated.</li></ul>
3.	<b>Methodology (20 points):</b>	<ul style="list-style-type: none"><li>Clearly outlines the step-by-step procedure followed in the experiment.</li><li>Discusses the rationale behind each experimental step.</li><li>Includes any modifications made during the experiment and justifies them.</li></ul>
4.	<b>Data Collection and Analysis (20 points):</b>	<ul style="list-style-type: none"><li>Presents data clearly and comprehensively.</li><li>Includes graphs, tables, and figures to support analysis.</li><li>Applies appropriate statistical methods and error analysis.</li><li>Draws conclusions based on the data collected.</li></ul>
5.	<b>Results and Discussion (20 points):</b>	<ul style="list-style-type: none"><li>Interprets the results in the context of fluid dynamics principles.</li><li>Discusses any unexpected findings and possible reasons.</li><li>Compares results with theoretical expectations or published data.</li></ul>
6.	<b>Conclusion (10 points):</b>	<ul style="list-style-type: none"><li>Summarizes the key findings of the experiment.</li><li>Addresses the implications and significance of the results.</li></ul>
7.	<b>Clarity and Organization (10 points):</b>	<ul style="list-style-type: none"><li>Writing is clear, concise, and free of grammatical errors.</li><li>Logical flow of ideas and sections.</li><li>Proper citation of sources if applicable.</li></ul>
8.	<b>Creativity and Innovation (Bonus 5 points):</b>	<ul style="list-style-type: none"><li>Encourages students to propose improvements or extensions to the experiment.</li><li>Rewards creative approaches to problem-solving.</li></ul>

## Grading Scale

1.	<b>Introduction (10 points):</b>	<ul style="list-style-type: none"> <li>A (9-10 points): Exceptional introduction with clear objectives, comprehensive background, and literature review.</li> <li>B (8-9 points): Very good introduction with minor areas for improvement.</li> <li>C (7-8 points): Satisfactory introduction; adequately states objectives but lacks depth in background.</li> <li>D (6-7 points): Needs improvement; objectives and background are unclear or insufficient.</li> <li>F (0-5 points): Unsatisfactory; lacks clear objectives and background information.</li> </ul>
2.	<b>Experimental Setup (10 points):</b>	<ul style="list-style-type: none"> <li>A (9-10 points): Exceptional description of apparatus, instruments, and measurement techniques with thorough consideration of potential errors.</li> <li>B (8-9 points): Very good description, but with minor areas for improvement or clarification.</li> <li>C (7-8 points): Satisfactory description; covers key aspects but lacks detail or clarity.</li> <li>D (6-7 points): Needs improvement; significant gaps or inaccuracies in describing the experimental setup.</li> <li>F (0-6 points): Unsatisfactory; inadequate or incorrect description of the experimental setup.</li> </ul>
3.	<b>Methodology (20 points):</b>	<ul style="list-style-type: none"> <li>A (18-20 points): Exceptional methodology with clear steps, rationale, and justifications.</li> <li>B (16-18 points): Very good methodology; minor areas for improvement or clarification.</li> <li>C (14-16 points): Satisfactory methodology; adequately outlines steps but lacks some details or justifications.</li> <li>D (12-14 points): Needs improvement; significant gaps or lack of clarity in the methodology.</li> <li>F (0-12 points): Unsatisfactory; methodology is unclear, incomplete, or incorrect.</li> </ul>
4.	<b>Data Collection and Analysis (20 points):</b>	<ul style="list-style-type: none"> <li>A (18-20 points): Exceptional presentation of data, thorough analysis, and application of appropriate statistical methods.</li> <li>B (16-18 points): Very good presentation and analysis; minor areas for improvement or clarification.</li> <li>C (14-16 points): Satisfactory presentation and analysis; adequately presents data but lacks some detail or analysis. Use of cryptic nomenclature.</li> <li>D (12-14 points): Needs improvement; significant gaps or inaccuracies in presenting or analyzing data.</li> <li>F (0-12 points): Unsatisfactory; inadequate or incorrect presentation and analysis of data.</li> </ul>

5.	<b>Results and Discussion (20 points):</b>	<ul style="list-style-type: none"> <li>• A (18-20 points): Exceptional interpretation of results in the context of fluid dynamics principles, thorough discussion, and insightful comparisons.</li> <li>• B (16-18 points): Very good interpretation and discussion; minor areas for improvement or clarification.</li> <li>• C (14-16 points): Satisfactory interpretation and discussion; adequately discusses results but lacks depth in analysis or comparison.</li> <li>• D (12-14 points): Needs improvement; significant gaps or lack of clarity in interpreting and discussing results.</li> <li>• F (0-12 points): Unsatisfactory; inadequate or incorrect interpretation and discussion of results.</li> </ul>
6.	<b>Conclusion (10 points):</b>	<ul style="list-style-type: none"> <li>• A (9-10 points): Exceptional summary of key findings with insightful implications and significance.</li> <li>• B (8-9 points): Very good conclusion; minor areas for improvement or clarification.</li> <li>• C (7-8 points): Satisfactory conclusion; adequately summarizes findings but lacks some depth.</li> <li>• D (6-7 points): Needs improvement; significant gaps or lack of clarity in summarizing findings.</li> <li>• F (0-6 points): Unsatisfactory; inadequate or incorrect conclusion.</li> </ul>
7.	<b>Clarity and Organization (10 points):</b>	<ul style="list-style-type: none"> <li>• A (9-10 points): Exceptional writing clarity, logical flow of ideas, and error-free grammar.</li> <li>• B (8-9 points): Very good clarity and organization; minor areas for improvement.</li> <li>• C (7-8 points): Satisfactory clarity and organization; adequately presents ideas but lacks some coherence.</li> <li>• D (6-7 points): Needs improvement; significant issues with clarity and organization.</li> <li>• F (0-6 points): Unsatisfactory; poor writing clarity, illogical flow, and numerous grammatical errors.</li> </ul>
8.	<b>Creativity and Innovation (Bonus 5 points):</b>	<ul style="list-style-type: none"> <li>• A (5 points): Exceptional creativity and innovative proposals. Great work!</li> <li>• B (4 points): Very good creativity and innovation; minor areas for improvement.</li> <li>• C (2-3 points): Adequately explores new ideas but lacks some depth.</li> <li>• D (1 points): Lack of clarity in creativity and innovation, but an effort was made.</li> <li>• F (0 points): No creative effort, no bonus points.</li> </ul>