# Grading Rubric for AAE 520: Experimental Aerodynamics

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

1. **Introduction (10 points):**
   - Clearly states the objective of the experiment.
   - Provides background information on relevant fluid dynamics concepts.
   - Includes a concise literature review.

2. **Experimental Setup (10 points):**
   - Describes the apparatus and instruments used in the experiment.
   - Includes details on measurement techniques and accuracy.
   - Addresses potential sources of error and how they were mitigated.

3. **Methodology (20 points):**
   - Clearly outlines the step-by-step procedure followed in the experiment.
   - Discusses the rationale behind each experimental step.
   - Includes any modifications made during the experiment and justifies them.

4. **Data Collection and Analysis (20 points):**
   - Presents data clearly and comprehensively.
   - Includes graphs, tables, and figures to support analysis.
   - Applies appropriate statistical methods and error analysis.
   - Draws conclusions based on the data collected.

5. **Results and Discussion (20 points):**
   - Interprets the results in the context of fluid dynamics principles.
   - Discusses any unexpected findings and possible reasons.
   - Compares results with theoretical expectations or published data.

6. **Conclusion (10 points):**
   - Summarizes the key findings of the experiment.
   - Addresses the implications and significance of the results.

7. **Clarity and Organization (10 points):**
   - Writing is clear, concise, and free of grammatical errors.
   - Logical flow of ideas and sections.
   - Proper citation of sources if applicable.

8. **Creativity and Innovation (Bonus 5 points):**
   - Encourages students to propose improvements or extensions to the experiment.
   - Rewards creative approaches to problem-solving.
## Grading Scale

1. **Introduction (10 points):**
   - **A** (9-10 points): Exceptional introduction with clear objectives, comprehensive background, and literature review.
   - **B** (8-9 points): Very good introduction with minor areas for improvement.
   - **C** (7-8 points): Satisfactory introduction; adequately states objectives but lacks depth in background.
   - **D** (6-7 points): Needs improvement; objectives and background are unclear or insufficient.
   - **F** (0-5 points): Unsatisfactory; lacks clear objectives and background information.

2. **Experimental Setup (10 points):**
   - **A** (9-10 points): Exceptional description of apparatus, instruments, and measurement techniques with thorough consideration of potential errors.
   - **B** (8-9 points): Very good description, but with minor areas for improvement or clarification.
   - **C** (7-8 points): Satisfactory description; covers key aspects but lacks detail or clarity.
   - **D** (6-7 points): Needs improvement; significant gaps or inaccuracies in describing the experimental setup.
   - **F** (0-6 points): Unsatisfactory; inadequate or incorrect description of the experimental setup.

3. **Methodology (20 points):**
   - **A** (18-20 points): Exceptional methodology with clear steps, rationale, and justifications.
   - **B** (16-18 points): Very good methodology; minor areas for improvement or clarification.
   - **C** (14-16 points): Satisfactory methodology; adequately outlines steps but lacks some details or justifications.
   - **D** (12-14 points): Needs improvement; significant gaps or lack of clarity in the methodology.
   - **F** (0-12 points): Unsatisfactory; methodology is unclear, incomplete, or incorrect.

4. **Data Collection and Analysis (20 points):**
   - **A** (18-20 points): Exceptional presentation of data, thorough analysis, and application of appropriate statistical methods.
   - **B** (16-18 points): Very good presentation and analysis; minor areas for improvement or clarification.
   - **C** (14-16 points): Satisfactory presentation and analysis; adequately presents data but lacks some detail or analysis. Use of cryptic nomenclature.
   - **D** (12-14 points): Needs improvement; significant gaps or inaccuracies in presenting or analyzing data.
   - **F** (0-12 points): Unsatisfactory; inadequate or incorrect presentation and analysis of data.
5. **Results and Discussion (20 points):**

- **A (18-20 points):** Exceptional interpretation of results in the context of fluid dynamics principles, thorough discussion, and insightful comparisons.
- **B (16-18 points):** Very good interpretation and discussion; minor areas for improvement or clarification.
- **C (14-16 points):** Satisfactory interpretation and discussion; adequately discusses results but lacks depth in analysis or comparison.
- **D (12-14 points):** Needs improvement; significant gaps or lack of clarity in interpreting and discussing results.
- **F (0-12 points):** Unsatisfactory; inadequate or incorrect interpretation and discussion of results.

6. **Conclusion (10 points):**

- **A (9-10 points):** Exceptional summary of key findings with insightful implications and significance.
- **B (8-9 points):** Very good conclusion; minor areas for improvement or clarification.
- **C (7-8 points):** Satisfactory conclusion; adequately summarizes findings but lacks some depth.
- **D (6-7 points):** Needs improvement; significant gaps or lack of clarity in summarizing findings.
- **F (0-6 points):** Unsatisfactory; inadequate or incorrect conclusion.

7. **Clarity and Organization (10 points):**

- **A (9-10 points):** Exceptional writing clarity, logical flow of ideas, and error-free grammar.
- **B (8-9 points):** Very good clarity and organization; minor areas for improvement.
- **C (7-8 points):** Satisfactory clarity and organization; adequately presents ideas but lacks some coherence.
- **D (6-7 points):** Needs improvement; significant issues with clarity and organization.
- **F (0-6 points):** Unsatisfactory; poor writing clarity, illogical flow, and numerous grammatical errors.

8. **Creativity and Innovation (Bonus 5 points):**

- **A (5 points):** Exceptional creativity and innovative proposals. Great work!
- **B (4 points):** Very good creativity and innovation; minor areas for improvement.
- **C (2-3 points):** Adequately explores new ideas but lacks some depth.
- **D (1 points):** Lack of clarity in creativity and innovation, but an effort was made.
- **F (0 points):** No creative effort, no bonus points.