

**\*\*\*\*Cover Page should look exactly like this with your information filled in**

MECH 3115.**Your Lab Section Number** Fluid Mechanics Laboratory

Name of Experiment

Name or Team Members and **what each team member contributed to the report**

Date of Experiment:

Date of Submission:

**Abstract: (5-points)**

Minimum 200 words

Should describe the point of the experiment and hint at your results

Must be on the first page, **3-point deduction if not on first page**

**2-point deduction if less than 200 words**

**1. Nomenclature (5-points)**

\*\*This section is all or nothing. There will be no partial credit given as it is very simple and straight forward.

List variable, variable name, and dimension

Example:

Re	Reynolds Number	(dimensionless)
U	Velocity	$\frac{m}{s}$

**2. Description of system (5-points)**

\*\*\*This section must be in your own words. Simply paraphrasing the lab manual will result in all points being deducted

Must include a picture of the apparatus --- **missing picture: 2-point deduction**

Picture must be correctly cited --- **incorrect citation: 1-point deduction**

Ex:

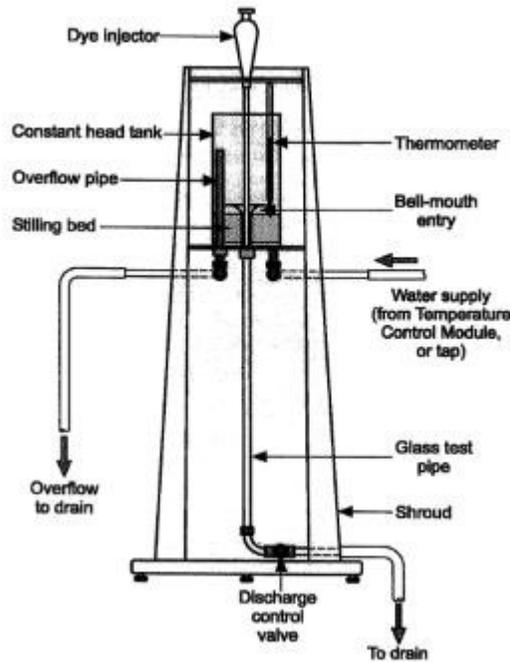


Figure 1. Reynolds Apparatus [REF 1]

3. **Procedure (5-points)**

**\*\*This section is all or nothing. There will be no partial credit given as it is very simple and straight forward.**

Someone should be able to replicate your experiment using this section  
This should be a list of steps that are clear and concise

4. **Theory (15 points)**

List the equations relevant to the experiment and an explanation of where they come from and why they are useful.

You MUST use the equation editor when typing equations, failure to do so will result in a **2-point deduction per equation**

You MUST number your equations so that you can reference them throughout the report, failure to do so will result in a **1-point deduction per equation**

5. **Sample Calculations (10 points)**

One sample calculation for each equation from Theory section. Include a description of which data point (trial) you used for the calculation, failure to do so will result in a **2point deduction**

You MUST use the equation editor when typing equations, failure to do so will result in a **2-point deduction per equation**

## 6. Results (15 points)

Table (Handed out during lab) --- you need to re-create the table for the report, NO PICTURES!

**5-point deduction** if not typed up

Table headings go **above** the table, **1-point deduction if missing or done incorrectly**

Ex:

Table 1. Description of Table \*\*\*You must include a description

$T_{\text{water}} (\text{°C})$	Condition	Time for 200ml (s)	$u$ (m/s)	$v \times 10^6$ ( $\text{m}^2/\text{s}$ )	Re

If you choose to graph your results in addition to your tables, graphs must be titled, axes labeled, graph description goes below the figure

**1-point deduction if missing or done incorrectly**

Ex:

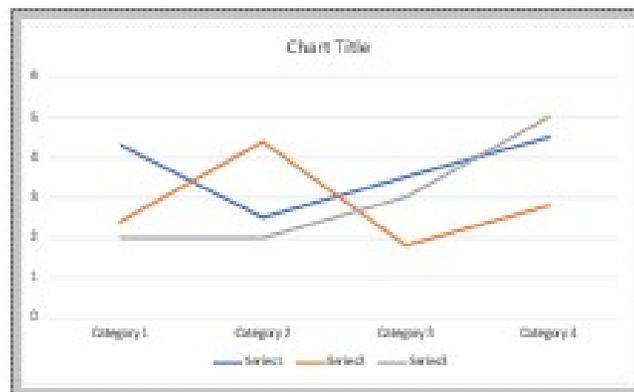


Figure 2. Graph Description

## 7. Discussion and Conclusion (25-points)

This is the most important part of the lab report.

Things we are looking for when we grade this section:

- Discussion of results that relates back both to Theory and Abstract
- You should reference your results using table/graph #'s to support your statements
- It should be clear that you have a strong conceptual understanding of the underlying theory as it relates to the experiment and the experimental results
- Discuss any problems that occurred not relating to human error i.e. apparatus failure, result outliers

\*\*\*\*DO NOT EVER MENTION HUMAN ERROR ANYWHERE IN YOUR REPORT, you lose all credibility when you mention human error in science.

## 8. Apparatus Uncertainty and Error Analysis (10-points)

Apparatus Uncertainty is essentially your resolution... it should be +/- #, NO HUMAN ERROR!

**5-point deduction** if Human Error or anything relating to is mentioned. This is the apparatus uncertainty...you are not part of the apparatus

Error Analysis

- Use Kline and McClintock method (example shown in class)
- Show all steps
- Do error analysis for one data point per equation
- NO percent error, std deviation, mean.....
- Use Equation editor

Failure to do any of the above will result in a **2-point deduction** per equation

## 9. References (5-points)

**\*\*This section is all or nothing. There will be no partial credit given as it is very simple and straight forward.**

You can use MLA, ALA, Chicago style citation...it does not matter, just make sure to cite all references used.

### Things to Remember

- Be mindful of things like citing pictures, table headings go above the table, figure descriptions go below, not using equation editor, or having an abstract that is 199 words instead of 200.... these are frivolous things to lose points for
- Do NOT copy and paste from the lab manual. The only thing that you can take from the lab manual are apparatus figures and this must be cited correctly as shown above. Any form of copying from the lab manual will result in a full points deduction for that section.
- The lab report should be written in your own words, just simply paraphrasing the manual is not only not allowed, but it wouldn't suffice anyways. Be concise in your writing and show that you understand the underlying theories and concepts and how they apply to the experiment and your results.
- Having outliers in your results or problems with the equipment are OK! Just have a complete explanation in your Discussion and Conclusions section stating what happened or why you think your results may be off.
- Never mention human error anywhere in your reports...you lose all credibility in Science in general when you do this
- Just follow this format EXACTLY... adding fancy cover pages, adding in extra sections will not get you more points. If you follow the format exactly as it's given you will get a good grade on all your reports