## PHYSICS 1030L

DATA PAGE FOR THE HEAT OF FUSION LAB

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol(s)</th>
<th>Unit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass of Styrofoam Cup</td>
<td>( m_c )</td>
<td>(kg)</td>
</tr>
<tr>
<td>Mass of Styrofoam Cup + Water</td>
<td>( m_{c+w} )</td>
<td>(kg)</td>
</tr>
<tr>
<td>Mass of water ( m_w )</td>
<td>( m_{c+w} - m_c )</td>
<td>(kg)</td>
</tr>
</tbody>
</table>

\( (T_{i,\text{ice}} = 0 \degree C) \)

- \( L_f \) is the Latent heat of fusion for water which is \( 3.33 \times 10^5 \) J/kg
- \( c_w \) is the specific heat of water which is 4186 J/(kg·°C)
- \( c_c \) is the Specific Heat of the Styrofoam cup. 1311.486 J/(kg·°C)

### TOTAL MASS
- Styrofoam Cup + Water + Ice (kg)
- Total Mass - \( m_w - m_c \) (kg)

### Mass Ice \( m_{\text{Ice}} \)
- Total Mass - \( m_w - m_c \) (kg)

### \( T_i \), temperature after the Stainless Steel Temperature Probe stabilizes (°C)

### Final Temperature in Theory \( T_{f,\text{theory}} \)
- \( m_w c_w T_i + m_c c_c T_i - m_l L_f \)
- \( m_l c_l + m_w c_w + m_c c_c \) (°C)

### Final Temperature in Experiment \( T_{f,\text{exp}} \) (°C)

### Per cent uncertainty in Mass

### Per cent uncertainty in The Temperature

### \( \Delta Q_{\text{in}} \)

### \( \Delta Q_{\text{out}} \)

### Exp Heat of Fusion