Smith  
Math 290  
Fall 2009  

Proof LT-2  
Accepted  

I affirm this work abides by the university’s Academic Honesty Policy.

Print Name, then Sign

- First due date **Friday, December 4.**
- *** You **may** discuss this problem with others but may not discuss how to write it up or show others your written work.
- Turn in your work on a separate sheet of paper with this page stapled in front.
- Do not include scratch work in your submission.
- Follow the Writing Guidelines of the Grading Rubric.
  (http://math.ups.edu/~bryans/Current/Fall_2009/290inf_Fall2009.html#tth_sEc5.1)
- Retry: Only use material from the relevant section or earlier.
- Retry: Start over using a new sheet of paper.
- Retry: Restaple with new attempts first and this page on top.

**Ignoramus, n.** A person unacquainted with certain kinds of knowledge familiar to yourself, and having certain other kinds that you know nothing about. – Ambrose Bierce, 1890

LT-2 (You may use material up through Section IVLT)
Given vector spaces $U$ and $V$, prove that a function $T : U \to V$ is a linear transformation if and only if $T(\alpha u_1 + u_2) = \alpha T(u_1) + T(u_2)$ for all vectors $u_1, u_2 \in U$ and all scalars $\alpha \in \mathbb{C}$. 
