This Week in SP351:2001: Homework, etc.

Homework must be submitted stapled in assignment groupings.

Always attempt to complete the readings before class. You are responsible for reading 10 pages past the current lecture. You may not understand the material completely, but you must read it prior to lecture.

** Problems to submit on the date listed: **

Week of 04 Oct

Monday:	***** Be prepared to receive HANDOUTS !**
	EV1, EV5, A7.
Wednesday	**EV 4a,b; EV6**
Friday:	**EV 2, 3***

Week of 11 Oct

Monday	**A8, A9**

B: => Boas Problem EV: => Eigenvalue
A: => Auxiliary Problem - statement on this page !
Hints

3* Make me discuss the problem before it is due !

A8.) Consider the set of vectors $\{\hat{i}+\hat{j}+\hat{k}, \hat{i}+\hat{j}, \hat{k}\}$. Display the general form for the span of this set. Assume a space over the reals. The set is linearly dependent. Express $\hat{k}$ as a linear combination of the other two vectors. Display a reduced set that spans the same space as does the original set. Display a basis set for the space spanned by $\{\hat{i}+\hat{j}+\hat{k}, \hat{i}+\hat{j}, \hat{k}\}$. What is the dimension of that space? Describe the locus of points described if the vectors are considered to be a set of displacements from the origin.

A9.) Prove that the set of all triplets of real numbers (a_1, a_2, a_3) is a vector space over the field of the reals provided that the addition is defined as

$$(a_1, a_2, a_3) + (b_1, b_2, b_3) = (a_1 + b_1, a_2 + b_2, a_3 + b_3)$$

and scalar multiplication is defined as:

$$c\,(a_1, a_2, a_3) = (c\,a_1, c\,a_2, c\,a_3)$$

That is: the vector space operations are defined in terms of operations on the real components of the vectors. Recall that the real numbers are a field.