ASSIGNMENT 3
DUE THURSDAY MARCH 12

(1) (a) Let M be a compact connected complex manifold. Show that any holomorphic function $f : M \to \mathbb{C}$ is constant. (Hint: use the maximum principle and the identity principle (a.k.a the analytic continuation principle) for holomorphic functions.)
    (b) Show that any compact connected complex submanifold of $\mathbb{C}^n$ is a point.

(2) Homework 14, problems 1,2,3,4 from da Silva.

(3) In class we showed (modulo various details) that the flag manifold $F^{\underline{\lambda}}$ carries an integral symplectic form whenever all λ_i are integers. So by the Kodaira embedding theorem, there should an embedding of the flag manifold into projective space. For each $\underline{\lambda}$, with λ_i an integer, find an embedding $\phi : F^{\underline{\lambda}} \to \mathbb{CP}^N$. The embeddings should be different if the differences $\lambda_i - \lambda_{i-1}$ are different. (Hint: if you are stuck, try look up the Plucker, Segre, and Veronese embeddings in wikipedia.)