Date . .

Writing $L=[D]$ for some divisor $D=\sum n_i V_i$,

$\gamma = c_1([D]) = \eta_D$. Q.E.D.

$\ulcorner$ By Proposition (p161), $\exists$ a divisor D s.t. $L=[D]$. $\Rightarrow$ $\gamma = c_1([D]) = \eta_D$. by p141, Proposition 2. //

3. Algebraic Varieties.

Analytic and Algebraic Varieties.

Let $X_0, X_1, \cdots X_n$ denote Euclidean coordinates on $\mathbb{C}^{n+1}$ and also the corresponding homogeneous coordinates on $\mathbb{P}^n$. Recall that the universal bundle $J \longrightarrow \mathbb{P}^n$ is the subbundle of the trivial bundle $\mathbb{C}^{n+1} \times \mathbb{P}^n \longrightarrow \mathbb{P}^n$ whose fibre over a point $X \in \mathbb{P}^n$ is simply the line $\{\lambda X\}_\lambda \subset \mathbb{C}^{n+1}$ corresponding to X.

The hyperplane bundle $H \longrightarrow \mathbb{P}^n$ is the dual of J, i.e., it is the bundle whose fibre over $X \in \mathbb{P}^n$ corresponds to the space of linear functionals on the line $\{\lambda X\}$. As we saw in Section 1 of this chapter, the Chern class of H is the fundamental class ω of a hyperplane in $\mathbb{P}^n$ — that is, a generator of $H^2(\mathbb{P}^n, \mathbb{Z})$ — and it follows from $H^1(\mathbb{P}^n, \mathcal{O}) = 0$ that every line bundle on $\mathbb{P}^n$ is a multiple H^d of H.

Consider now the global sections of the bundle H.