

large, we may assume that
 $H^1(M, \mathcal{O}(L)) = 0$.

First of all, choose a hyperplane section $V = \mathbb{P}^{n-1} \cap M$ which is algebraic curve and smooth, where $M \subset \mathbb{P}^n$.
 $\Rightarrow L = kV$, for k sufficiently large. \Rightarrow By Theorem B, on p159, $H^1(M, \mathcal{O}(L)) = 0$ \square

Let $m = L \cdot C$ and consider, for each $k = 0, 1, \dots, m$ the sequences

$$(*_k) \quad 0 \rightarrow \mathcal{O}_M(L + (k-1)C) \rightarrow \mathcal{O}_M(L + kC) \rightarrow \mathcal{O}_C(L + kC) \rightarrow 0.$$

By p139, $E = L + kC$, $D = C$ \square

We note first that if $H \rightarrow C \cong \mathbb{P}^1$ is the point bundle on \mathbb{P}^1 , $(L + kC)|_C = (m-k)H$, so that
 $H^1(C, \mathcal{O}(L + kC)) = 0$ for $k < m+1$.

$H \rightarrow C \cong \mathbb{P}^1$ is the hyperplane bundle, since the hyperplane of \mathbb{P}^1 is just a point.

Since $(L + kC) \cdot C = L \cdot C + kC \cdot C = m - k$, and

$$\deg((L + kC)|_C) = \int_C c_1(L + kC) = \int_M c_1(L + kC) \wedge c_1(C)$$

$$= (L + kC) \cdot C, \text{ by p145, } (L + kC)|_C = (m-k)H$$

$$(\because \deg((m-k)H) = m-k = \deg((L + kC)|_C)).$$

$$\Rightarrow \text{If } k \leq m+1, \quad m-k \geq 1. \quad H^1(C, \mathcal{O}((m-k)H)) =$$