

ASSIGNMENT 4
DUE TUESDAY MARCH 31

- (1) Is $\mathbb{C}\mathbb{P}^1$ Calabi-Yau? (ie. does it have a non-vanishing holomorphic 1-form?)
- (2) Show that the Fubini-Study symplectic structure on $\mathbb{C}\mathbb{P}^n$ agrees with the symplectic structure on $\mathbb{C}\mathbb{P}^n$ coming from Hamiltonian reduction (at π) of \mathbb{C}^{n+1} . (Hint, consider the pullback of the symplectic form under the inclusion $\mathbb{C}^n \rightarrow \mathbb{C}\mathbb{P}^n$ given by $(z_1, \dots, z_n) \mapsto [1, z_1, \dots, z_n]$.)
- (3) Optional: Homework 18, problems 1-6 from da Silva.