In this talk I discuss a statistical model for picking National Football League (NFL) games, both against the spread and straight up, using a collection of openly-available and proprietary data. Features of the model include historical Vegas betting lines and spreads, as well as Pro Football Focus’ individual player grades. Ranking algorithms including the Keener method are also used. The performance of this model, on test data from 2007-2015, as well as the 2016 NFL regular season, are compared with that of media experts. Future possible features of the model are also discussed. (Received September 16, 2016)