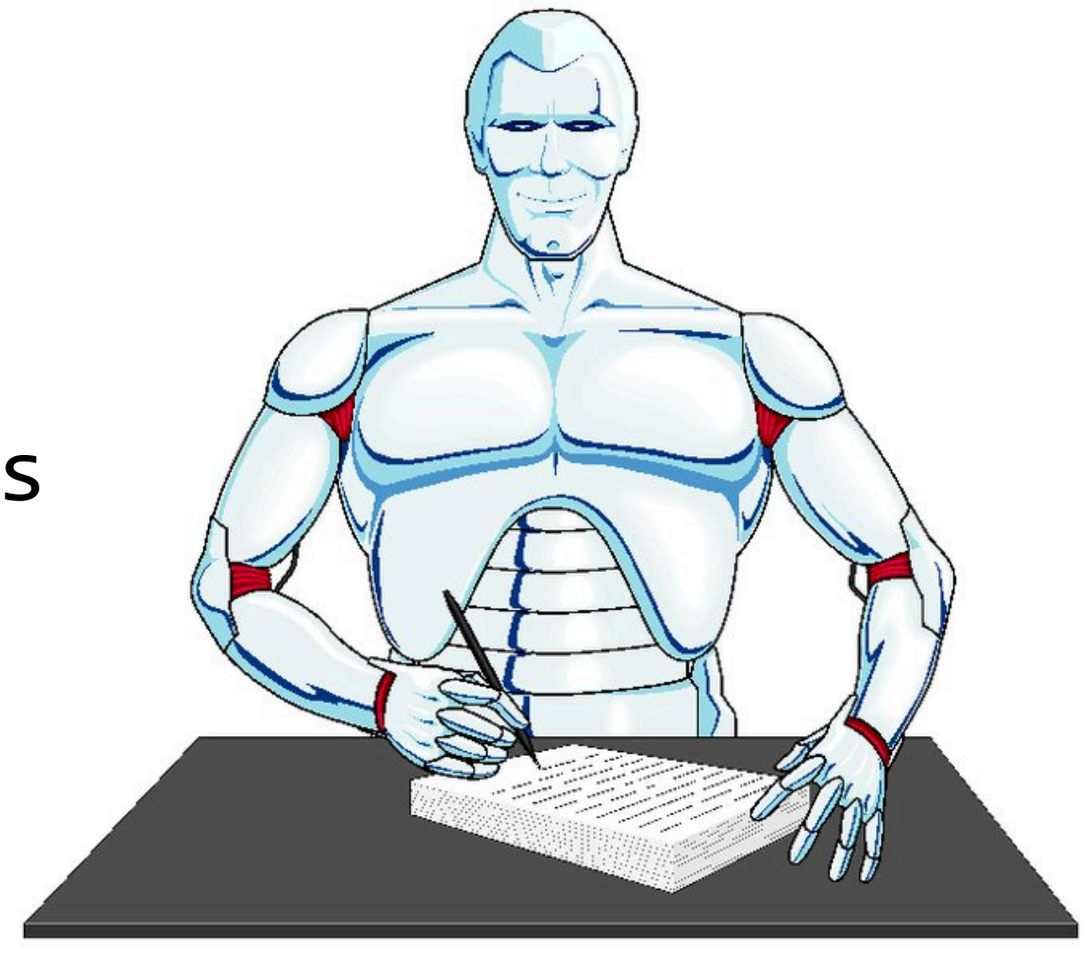
FINAL EXAM REVIEW

12.7.2020

FINAL

* the final is posted **today** (Dec. 7)

* it will be due (and this is a *HARD* deadline) on Monday, December 14 at 10:59 AM



FINAL

* the final is SELF-TIMED (*honor system!*) for 4 hours (no proctorio, etc.)

  * your time starts when you first look at it, and you should stop working on it (& turn it in) 4 hours later

* it is **OPEN BOOK, OPEN DOCUMENTATION, OPEN OLD PROBLEM SETS, & OPEN INTERNET**

  * but don’t discuss it with anyone else until you have both finished it

FINAL

* There will be a more free-form final review session / office hours Tuesday, Dec. 8th from 12:30-2pm

TOPICS

* basic python

* numpy

* matplotlib

* statistics

* timeseries

* linear regression

0. BASIC PYTHON

* for loops *(lecture 4)*

* list comprehensions *(lecture 6)*

1. NUMPY

* array indexing *(lectures 7-10)*

* array arithmetic *(lecture 8)*

* array aggregation (sum, max, etc.)
  (lecture 10)

2. MATPLOTLIB

* plt.plot, plt.hist *(lecture 13)*

* adding x- and y-axis labels, adding titles *(lecture 13)*

* plot legends *(lecture 13)*

* plt.imshow & plt.matshow, colormaps, colorbars *(lecture 13)*

* adding a grid *(lecture 13)*

3. STATISTICS

* binomial tests *(lectures 15-16)*

* bootstraps *(lecture 17)*

* z-scoring *(lecture 18)*

* t-tests *(lectures 19-20)*

* permutations *(lecture 21)*

* correlation *(lecture 22)*

4. TIMESERIES

* filtering / convolution *(lecture 24)*
  * low-pass filter design *(lecture 26)*
  * high-pass filtering *(lectures 26-27)*
* power spectral density *(lecture 25)*
* spectrograms *(lectures 26-27)*

5. LINEAR REGRESSION

* least-squares regression (np.linalg.lstsq) *(lectures 30-32)*

* computing out-of-set predictions (training set vs. test set) *(lecture 32)*

* goodness-of-fit metrics (R^2) *(lectures 32-33)*

* regularized (ridge) regression *(lectures 34-36)*

THAT'S ALL, FOLKS!