

Seminar (ASTRO 589)

Fall 2019

Problem Set 2

Due 30 September 2019

Homework is the central part of this course. You are encouraged to collaborate with fellow students and/or to consult senior students, local postdocs and me. But, **please write the cod/solution by yourself**. Homework is strictly due by the beginning of the class on 30 September, and **no late homework will be accepted**.

1. (a) HETDEX Spring field is a $42^\circ \times 7^\circ$ footprint around (R.A., Dec.) = (13^{h} , 53°), and the Fall field is a $28^\circ \times 5^\circ$ footprint around (R.A., Dec.) = (1.5^{h} , 0°). Plot the survey boundaries in (R.A., Dec.) plane.

(b) The central coordinates of IFUs can be parametrized by $(L, M) = (100''n + 50'', 100''m + 50'')$ with two integers n and m . Using the layout for 78 IFUs in the HETDEX wiki page, plot the footprints of IFUs when the HET points at R.A. = 13^{h} and Dec. = $57^\circ, 55^\circ, 53^\circ, 51^\circ$. Plot them for both EAST track and WEST track.

Repeat the plotting for R.A. = 1.5^{h} and Dec. = $3^\circ, 1^\circ, -1^\circ, -3^\circ$.

- Send me both the graphs and your code as PDFs (djeong@psu.edu).
- Use your favorite programming language in the list below: FORTRAN, C++, Python, IDL, Julia, Mathematica, but **DO NOT** use readymade packages such as astropy, etc. You may call standard integration routines (scipy.integrate, scipy.ode, or their equivalent).