Assignment for ARA&A article by Salim & Narayanan

Objective: Write a piece of Python code that will calculate the intrinsic flux of observed emission lines assuming a CCM Galactic extinction curve with Rv=3.1 (assume the intrinsic Balmer decrement is 2.85).

Deliverables:

1) Compute the k(λ) for each of these lines:
Halpha (λ=6563 Å)
Hbeta (λ=4861 Å)
[OIII] (λ=5007 Å)
[NII] (λ=6585 Å)

(Total 2 points)

2) Compute the intrinsic flux for each of these observed fluxes:
Halpha = 0.1884 x 10^{-16} erg/s/cm^2
Hbeta = 0.0570 x 10^{-16} erg/s/cm^2
[OIII] = 0.0683 x 10^{-16} erg/s/cm^2
[NII] = 0.0349 x 10^{-16} erg/s/cm^2

(Total 2 points)

3) Submit your Python source code. You may not use any external functions (only basic numerical functions within numpy) in your code – it must be written by you entirely from scratch. Please include a comment line in your code stating "All of the code submitted here is exclusively my own work."

(Total 6 points)

Submission: By email to sarae@uvic.ca by 5pm January 15.

Marking scheme: I am not looking for fancy code – if you code is clearly written and demonstrates that you have understood the mathematical formulism you will receive full marks. You will still receive part marks if the numerical answers are incorrect, but the basic structure of the code looks solid and the extinction equations are correctly used.