

- Show your work.
 - This work must be submitted online via github classroom at <https://classroom.github.com/a/KIC9Ho->
 - A pdf copy of the report must be submitted on Canvas.
 - All code must be version controlled with git.
 - This project should be individual work.
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1. (30 points) Write a Monte Carlo code to calculate the multiplication constant and flux distribution for one-speed neutrons in a slab reactor of thickness $a = 1.0m$ with isotropic scattering for which ($\Sigma_a = 0.12cm^{-1}$, $\Sigma_s = 0.05cm^{-1}$, $\nu\Sigma_f = 0.15cm^{-1}$) over $0 < x < 50cm$ and ($\Sigma_a = 0.10cm^{-1}$, $\Sigma_s = 0.05cm^{-1}$, $\nu\Sigma_f = 0.12cm^{-1}$) over $50 < x < 100cm$.
2. (40 points) Report on your results with sufficient clarity to reproduce your work. This should include a clear README describing how your instructor can replicate your flux distribution plot and multiplication factor. A report document (in any format, but markdown or latex are preferred) should include a 4 page description of your method and results. Please include standard elements of the report (e.g. title, references, bibliography, clear captions for figures and tables.)
3. Employ good software practices.
 - (a) (5 points) Use functions, data structures, and classes appropriately.
 - (b) (5 points) Document your code clearly, using informative variable names, documentation strings, and function call definitions.
 - (c) (5 points) Include a license. Consider BSD-3, a permissive open source licence that requests attribution only.
 - (d) (15 points) The code should be well organized, readable, and runnable.