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Python notebooks as a pedagogical tool to teach NOT data reduction

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We will present a series of seven Python Jupyter Notebooks designed to teach master-level students the basic steps of data reduction for observations with the Alhambra Faint Object Spectrograph and Camera (ALFOSC). This pedagogical tool, which translates IRAF tasks into the widespread Python language, has been successfully deployed for the course “Observational Astrophysics II” at the Department of Astronomy of Stockholm University. Each notebook introduces the students to one specific task of the data reduction explaining the purpose of that task, how it is implemented and guiding the students through the completion of the task. With a hands-on approach, this allows the students to understand the reason behind each step and to test directly what is the effect of each step, thanks to interactive plots of the data and the intermediate products. In addition to its educational value, this material can be expanded to reach the quality needed for scientific works. Therefore it could offer a starting point for developing a personalised data reduction for a given scientific problem. A complete version of the material is publicly available at https://github.com/astrojuggler/data-reduction-Obs-II-course. This project has been financed by Stockholm University - Department of Astronomy with a grant earned by Professor Matthew Hayes.

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