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**CALVIN (Python Version)**

**Fall 2018 Shortcourse**

Prepared by

Mustafa S. Dogan

[msdogan@ucdavis.edu](mailto:msdogan@ucdavis.edu)

Center for Watershed Sciences

Date: October 5, 2018

Location: TBD

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**Registration:** [**https://goo.gl/forms/6nUVGddb8xhUOSVn1**](https://goo.gl/forms/6nUVGddb8xhUOSVn1)

# Tentative Agenda and Topics

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| --- | --- | --- |
| 10.00 – 10:05 am | - | Introduction |
| 10:05 – 10:30 am | - | Set-up required software |
| 10:30 – 11:15 am | - | CALVIN Theory |
| 11:15 – 12:00 pm | - | HOBBES overview and exporting network data |
|  |  |  |
| **12:00 – 01:00 pm** | **-** | **Lunch break** |
|  |  |  |
| 01:00 – 01:15 pm |  | CALVIN Python version updates and Pyomo |
| 01:15 – 02:15 pm | - | “Abstract model”: run and analyses |
| 02:15 – 03:15 pm | - | “Concrete model”: run and analyses |
|  |  |  |
| **03:15 – 03:30 pm** | **-** | **Break** |
|  |  |  |
| 03:30 – 04:30 pm | - | Postprocessing and analyzing results |

# Summary

This shortcourse is intended for those who are interested in California’s water supply system and large-scale water optimization modeling. Mechanics of the CALVIN model will be covered. This crash course introduces open-source CALVIN version modeled in Python-based Pyomo environment, employing faster solvers and giving an opportunity for better representation of the system. It walks through steps for required software installation process for the CALVIN model, as well as creating a model run and postprocessing results.

Recommended readings

* **Original publication of CALVIN** (Draper et al., 2003):

Draper, A. J., Jenkins, M. W., Kirby, K. W., Lund, J. R., & Howitt, R. E. (2003). Economic-Engineering Optimization for California Water Management. *Journal of Water Resources Planning and Management*, *129*(3), 155–164. <https://doi.org/10.1061/(ASCE)0733-9496(2003)129:3(155)>

* **Open-source Python version of CALVIN** (Dogan et al., 2018):

Dogan, M. S., Fefer, M. A., Herman, J. D., Hart, Q. J., Merz, J. R., Medellín-Azuara, J., & Lund, J. R. (2018). An open-source Python implementation of California’s hydroeconomic optimization model. *Environmental Modelling & Software*, *108*, 8–13. <https://doi.org/10.1016/j.envsoft.2018.07.002>