Syllabus

Introductory SWAT for UNSA 2019

OVERVIEW

This course serves as an introduction to SWAT modeling software, the Soil and Water Assessment Tool. This course includes videos, readings, quizzes, and assignments for learning the material. This course is organized and taught by Purdue University and the Arequipa Nexus Institute.

INSTRUCTORS

- Ms. Katy Mazer is the Sustainable Watershed Management Coordinator of the Arequipa Nexus Institute. She has four years of experience in teaching watershed sciences. She will be your primary contact for the course.

- Dr. Fariborz Daneshvar is Postdoctoral Research Associate at Purdue University. He has more than six years experiences in watershed and water quality modeling. He will provide SWAT technical expertise, participating in instructional video development and responding to technical questions about using SWAT.

- Dr. Jane Frankenberger is a professor of Agricultural and Biological Engineering at Purdue University and has conducted research using SWAT for more than 10 years. Her role in this training will primarily be in developing the instructional videos. https://engineering.purdue.edu/~frankenb/; frankenb@purdue.edu

LEARNING MODULES

This course will take place through five learning modules. Each module includes the following elements

1. Instructional videos
2. Discussion forum for sharing ideas with others
3. Assignment applying the SWAT concepts or using what was learned in the video
4. A quiz that will assess your competence with the module material.

After completing each module, please complete the brief evaluation.

LIST OF MODULES

The following list provides an overview of the Learning Modules

1. Introduction and Setup

This is the first module out of four SWAT instructional series. Finishing this module, you will learn how to access online resources and connect to the big community of SWAT users through the SWAT website. You will also learn how to install ArcSWAT and set up a new SWAT project. A short summary on SWAT files will be provided too, while more details on input and output files will be presented in future modules.

2. Watershed Geographic Characterization

Within this module, you will learn how to delineate the watershed, create river network and sub-watershed maps for the study area. Each sub-watershed should also be divided into areas of similar land use, soil and slope that are called Hydrologic Response Units (HRUs). Finishing this module, you will learn how to define these three layers and overlay them to create HRUs.

3. Input File Development

Finishing this module, you will have a SWAT model ready to run. First, you will learn how to define weather data input and create all SWAT input files. Then you will demonstrate the great flexibility of the SWAT model and will learn how to modify created input files.

4. Simulation and Output Analysis

Having all SWAT model inputs ready, you can proceed with the SWAT simulation. Here you will learn how to setup a simulation, run the model, and save your simulation. You will also learn how to analyze model outputs through the SWAT Check, and detailed review of model outputs imported into the database.

5. SWAT Model Development for Part of the Cuenca Quilca-Vitor-Chili

In this section, you will integrate your knowledge from previous modules. All required input layers and datasets are provided for a small section of Quenca Quilca-Vitor-Chili. You should be able to develop your own SWAT model for this region, simulate hydrology for the period of 2010-2017 and review model outputs.

TIME COMMITMENT

Learning module assignments will be due every week, and each assignment will involve about 2 or 3 hours of your time. However as this is the first time the course is offered, we are not sure of the range of time participants will spend.

SCHEDULE

Dates 2019	Module & Due Date
January 14-21	Introduction and Setup *Due by Jan 21*
January 21-28	Watershed Geographic Characterization. *Assignment due January 28*
January 28-February 4	Input File Development, *Assignment due February 4*
February 4-11	Simulation and Output Analysis, *Assignment due February 11*
February 11-18	SWAT model development for part of Quenca Quilca-Vitor-Chili *Assignment due Feb 18*
March 1	All items due