**Purdue University TexGen Workshop Agenda**

Dr Louise Brown

Morning

1. General overview of the TexGen project

* Downloading TexGen - where executables and code are stored
* Documentation - Wiki pages, examples on GitHub
* User forum
* Overview of where TexGen fits into the multi-scale modelling process
* Summary of software structure

2. An overview of the use of TexGen as a pre-processor for generating textile models

* Automatically generated 2D and 3D models and example of use for prediction of mechanical properties
* Use of µCT data to extract geometric trends for refinement of idealised model. Example of 3D orthogonal model and its use for prediction of permeability
* Generation of models for other types of textiles such as braids and knits

3. Overview of TexGen GUI

4. TexGen modelling theory and how this relates to the creation of TexGen models both using the graphical user interface (GUI) and Python scripting.

5. Generation of 2D, 3D and layered textiles using the automation provided by the weave wizards.

* 2D weave exercise

6. Saving textiles.

Afternoon

7. Creating custom textiles using the GUI.

8. Editing textiles using the graphical user interface (GUI).

9. TexGen as a Pre-processor

* Meshing and export options
* Elastic analysis
* Flow simulation

10. Introduction to the Python scripting API

* Creating scripts for custom textiles
* Scripting exercise
* Scripts using weave classes
* Other textile types

11. How to use Python commands to edit models from the TexGen Python console