# C++ 3D Assignment 4 (3 pts) – Week 2.7 Terrain shading in the MGE

This assignment requires you to create a material that implements terrain shading in the MGE. You should be able to explain all steps involved. Acquiring points does not only depend on whether you implemented something, but also on your ability to explain why you did what you did. Apply principles of good coding. Read the whole assignment first. Create a custom shader just like you did for lighting in assignment 3 and then implement the features below.

## ASSIGNMENT 4.1 IMPLEMENT TERRAIN DEFORMATION (1 PTS MANDATORY)

Implement a terrain shader with the following requirements:

- vertices are offset in the y direction based on a heightmap and a terrain height setting
- fragments are colored based on a splatmap and 4 input textures of which at least one is animating (eg water, lava, etc)

Cookie challenge:

- experiment with trig functions and overlapping layers to create a much cooler looking animation effect than the standard moving-in-a-single-direction animation
- use your own heightmap, splatmap and input textures instead of the given assets

## ASSIGNMENT 4.2 IMPLEMENT TERRAIN LIGHTING (1 PTS OPTIONAL)

Implement lighting for a ***dynamically*** generated terrain. You are free to use any of the methods described in lecture 4.

## ASSIGNMENT 4.3 IMPLEMENT TRIPLANAR TEXTURE MAPPING (1 PTS OPTIONAL)

Implement triplanar texture mapping for the terrain.