

| Week         | Date                   | Topic                      | Activity   | Milestones          |
|--------------|------------------------|----------------------------|--|---------------------|
| 1            | 26th Feb.              | Intro                      | <b>Lecture:</b> Intro and outline  |                     |
|              |                        |                            | <b>Lecture:</b> Intro to tools of the trade: Matlab, Inkscape and LaTeX        |                     |
|              |                        |                            | <b>Practical:</b> LaTeX  |                     |
| 2            | 5th March              | Tessellation               | <b>Lecture:</b> Symmetry and tessellations: the language of patterns           |                     |
|              |                        |                            | <b>Practical:</b> build tessellations in Matlab                                |                     |
|              |                        |                            | <b>Workshop:</b>   | Submit practical 1  |
| 3            | 12th March             |                            | Holiday  |                     |
|              |                        | Sinusoids                  | <b>Lecture:</b> Periodicity, superposition of sines, and the Fourier Transform |                     |
|              |                        |                            | <b>Practical:</b> use FFT in Matlab  | Submit practical 2  |
| 4            | 19th March             | Continuum models           | <b>Lecture:</b> Diffusion processes  |                     |
|              |                        |                            | <b>Practical:</b> finite difference methods for diffusion                      |                     |
|              |                        |                            | <b>Workshop:</b> generating noise textures                                     | Submit practical 3  |
| 5            | 26th March             | Discrete models            | <b>Lecture:</b> Random walks   |                     |
|              |                        |                            | <b>Workshop:</b> pattern selection workshop                                    | Submit practical 4  |
|              |                        |                            | Holiday  |                     |
| <b>BREAK</b> |                        |                            |  |                     |
| 6            | 16 <sup>th</sup> April | Reaction-diffusion models  | <b>Lecture:</b>  |                     |
|              |                        |                            | <b>Practical:</b>  |                     |
|              |                        |                            | <b>Workshop:</b>   |                     |
| 7            | 23 <sup>rd</sup> April | Cellular automata          | <b>Lecture:</b>  |                     |
|              |                        |                            | Holiday  |                     |
|              |                        |                            | <b>Practical:</b> comparing models   | Draft report 1 due. |
| 8            | 30 <sup>th</sup> April | Fractals                   | <b>Lecture:</b>  |                     |
|              |                        |                            | <b>Workshop:</b> final project advice  |                     |
|              |                        |                            | <b>Workshop:</b> final project advice  | Draft poster due.   |
| 9            | 7 <sup>th</sup> May    | <h1>PURE MATH SEGMENT</h1> |  |                     |
|              |                        |                            |  |                     |
| 10           | 14 <sup>th</sup> May   |                            |  |                     |
|              |                        |                            |  |                     |
|              |                        |                            |  | Final report 1 due. |
| 11           | 21 <sup>st</sup> May   |                            |  |                     |
|              |                        |                            |  | Final posters due.  |
| 12           | 28 <sup>th</sup> May   |                            | <b>Poster presentations:</b> time to be advised                                |                     |
|              |                        |                            | <b>Poster presentations:</b> time to be advised                                |                     |
|              |                        |                            | <b>Poster presentations:</b> time to be advised                                |                     |
| 13           | 4 <sup>th</sup> June   |                            | Extra week   | Final report 2 due. |