Project Plan (Rough)

Week 1 (Oct 10)

* Papers and general reading/research.
* Set up and Git repository for ease of code sharing, file editing and file history. Create classes for the bugs and food for the initial run.

Week 2 (Oct 17)

* Get the initial system of bugs, food and reproduction running.
* Make design choices such as overlap, how reproduction works.etc.
* Attempt to implement the graphical visualisation of this and any data outputs.

Week 3 (Oct 24)

* Complete graphical visualisation and the output of data. Try to give each sequence of random numbers a seed so that a system can be retrieved if needed.
* This initial coding ‘skeleton’ needs to be well thought out to add other parameters later. Use outputs for debugging and to check results.

Week 4 (Oct 31)

* Generate data for a simple environment (bugs and food). Try different distributions of food (e.g. 2D Gaussian, in the corners.etc). Plot and analyse data making sure all data that would be useful to keep is recorded.

Week 5 (Nov 7)

* Start making the system more complex. At this stage would probably add predators and see their effect on the system.

Week 6 (Nov 14)

* Add something like vision which in turn would affect behaviour. Bugs would move towards food but away from predators. Bugs would also try to avoid food to which other bugs are close by to avoid sharing.

Week 7 (Nov 21)

* Add genes and random mutation upon reproduction for both predators and bugs. This would affect things like vision, speed, reproduction rate, maybe eating speed if sharing food is allowed.etc.

Week 8 (Nov 28)

* Genes and vision are expected to take longer than just their respective weeks. If time is left over expand the system even more (e.g. evolving food, obstructions).

Week 9 (Dec 5)

* Begin wrapping up coding and finish debugging. Test different configurations to find what gives the best (most meaningful) results. Analyse these results.

Week 10 (Dec 12)

* Consolidate findings, data, and any outputs (videos, graphs, images.etc). Preparing for Viva individually.