

**Course title: Collective Behaviour**

**Course code: 63558**

**ECTS: 6**

**Professor: Iztok Lebar Bajec**

**Master's program**

**Prerequisite knowledge:**

- Basic knowledge of algorithms and data structures
- Programming (preferably Python, C, C++)
- Basic computer graphics, rendering & game development (exposure to OpenGL, WebGL, Unity, Unreal, ...)
- Basic statistical analysis and data visualization skills
- Team work skills (ability and desire to work in groups)

**Short course description:**

- The course is a research-oriented one, highly focused on collective animal behaviour algorithms. Students work in teams, and during the course they research various collective animal behaviour models, recreate them in their programming language of choice, decide on their own modifications of these models and implement them. All with the goal to perform a systematic analysis of the influences their modifications have. The accompanying lectures present the theoretical aspects behind some models, their research questions, and thought process during their design. Some methodologies are covered more in depth, e.g. fuzzy logic and open-ended evolution.