**MSCi Experimental Skills Module (BIOL33012)**

**Unit outline**:

Students on this unit complete short research projects in teams of six to eight.  They are given an experimental problem, design the appropriate experiments, execute the experiments and then present their findings as both a short report and a poster. Each group plans the experiments over two tutorials between weeks 3 and 6 with the support of the academic supervisor. Students are expected to read the relevant literature prior to these, much is the same way that other students would prepare for their literature review. Students are then expected to explore a range of different approaches available; select the most appropriate approach and plan suitable controls.  Then each individual student will be responsible for executing one part of the plan and to produce data for their part of the project.  The experimental work is mostly carried out in the second floor teaching labs in Stopford (with student demonstrators and teaching lab support). Some projects also involved fieldwork or time in the flow cytometry facility. There is considerable leeway in the design of the experimental work, but it should take place in weeks 7 and 8. Some projects run over five days of one week, whereas others were spread out over two weeks, but should involve approximately 36 hours of lab work. The poster presentation runs after the Easter break.

**The unit is assessed through:**

2 page plan describing the background literature, the scientific problem/question, and aims (15%).

5 page report of the results obtained by each individual student, presenting data in an appropriate style for publication along with a short introduction and conclusion (45%).

Student performance within the tutorials and laboratory sessions (10%).

Preparation of a group A1 poster that is suitable for an international scientific conference (20%).

Presentation of the poster as an individual at a poster session for all MSci students (10%).

Examples of current projects are:

**Urbanisation and birdsong**

*Dr. Ben Chapman (*[*ben.chapman-2@manchester.ac.uk*](mailto:ben.chapman-2@manchester.ac.uk)*)*

**Butterfly wing shape: morphometrics and evolution**

*Supervisor: Dr. Robert Nudds (*[*Robert.Nudds@manchester.ac.uk*](mailto:Robert.Nudds@manchester.ac.uk)*)*

**Identifying different immune cell populations using mouse models.**

*Supervisor: Dr. Mark Travis (*[*Mark.Travis-2@manchester.ac.uk*](mailto:Mark.Travis-2@manchester.ac.uk)*)*

**Salicylic acid and plant apoptosis: an old hormone up to new tricks in plant immunity.**

*Supervisor: Dr. Patrick Gallois (*[*Patrick.G.Gallois@manchester.ac.uk*](mailto:Patrick.G.Gallois@manchester.ac.uk)*)*

**Brain Slice: a lab approach to neural disease and treatment**

*Supervisor: Dr. Jon Turner (*[*J.Turner-2@manchester.ac.uk*](mailto:J.Turner-2@manchester.ac.uk)*)*

**Investigating protein translocation at the Endoplasmic Reticulum.**

*Supervisor: Dr. Martin Pool (*[*martin.r.pool@manchester.ac.uk*](mailto:martin.r.pool@manchester.ac.uk)*)*

**Coordination of apoptosis by mitochondrial dynamics.**

*Supervisor: Dr. Andrew Gilmore (*[*agilmore@manchester.ac.uk*](mailto:agilmore@manchester.ac.uk)*)*