

STRUCTURE OF THE MAJOR – Class of 2025

The Life Sciences major requires students to complete 54 Units including a capstone project that is worth 10 Unit

1. Introductory Course (5Unit)

YSC2256 Science of Life: Introduction to Biology

This is compulsory. However, students who have scored sufficiently high grades in A-level, IB Higher, or Advanced Placement Biology courses (e.g, a 5 on the AP exam) may, with the approval of the Head of Studies, place out of the Introductory Course. These students must read at least one course (5 Units) from each of the three Gateway sets.

2. Gateway Courses (Foundation Courses) (10/15 Unit)

Students who take YSC 2256 Science of Life need to take two out of three **Breadth** requirements (total 10 Units). Students who placed out of YSC2256 need to take at least one course from each of the three Breadth groups (total 15Units).

Breadth 1: Genetics, Cell and Molecular Biology

YSC2233 Genetics

YSC3233 Cell Biology

YSC3214 Biochemistry

YSC3257 Molecular Biology

YSC3265 Human Physiology

YSC4XXX Adv. Topics Molecular, Cellular & Developmental Biology

Breadth 2: Ecology and Evolution

YSC2247 Ecology and Ecosystems

YSC2216 Evolutionary Biology

YSC3251 Conservation Ecology

YSC3235 Animal Behaviour

YSC4240 Urban Wildlife

YSC4211D Adv Topics in Ecology & Evolution: Behavioural Ecology

Breadth 3: Quantitative Biology

YSC2255 Statistics for Life Sciences

YSC3241 Introduction to Systems and Computational Biology

YSC4211F Adv Topics: Human Population Genomics

YSC3241 Computational and Systems Biology

3. Methods Course (5Unit)

Students need to choose **one** of the following:

YSC2202 Biology Laboratory

YSC2235 Field Research

YSC4240 Urban Wildlife

4. Elective Courses (20Unit)

Students select any four Courses from the list of life sciences Courses, with **at least one course at the 4000 level**:

YSC2231 Foundations of Neuroscience, YSC2234 Human Biology, YSC2236 Microbiomes,

YSC2241 Plant Biology, YSC2250 Urban Wildlife Studies, YSC3214 Biochemistry, YSC3234

Principles of Biophysics, YSC3235 Animal Behaviour, YSC3238 Developmental Biology, YSC3250

Immunology, YSC3253 Coral Reefs and Environmental Change, YSC3255 Biology of Ageing,

Adv Topics Molecular, Cell & Developmental Bio: Stem Cells, YSC4211C Adv Topics Computational Biology, YSC4226 Advanced Methods in Cell Biology, YSC4229 Molecular Neuroscience - Genes, Brains, and Behaviour, YID3221 Wildlife Forensics and the Shark Fin Trade, YID2214 Plants and People, YSS3249 Human Neuroscience, YSC3253 Coral Reef Ecology and Environmental Change, YSC2236 Microbiomes

All Courses under Methods and Breadth 1, 2 and 3 that have not been taken to satisfy the Gateway requirement can also be taken as electives.

Under Gateway and Electives, **at least two courses** must be at 3000 level or higher.

5. Advanced and Capstone Courses (15Unit)

Students need to complete YSC3215 Research Seminar and YSC4102 Life Sciences Capstone Project. The capstone project will typically be a guided, independent project in laboratory or field research. During the first semester of the Capstone, there will be a seminar component. Students will begin preparing for the project no later than the third year with the Life Sciences Research Seminar, culminating in a proposal for their fourth year project. Students are encouraged to engage in research earlier in their college years, but the capstone project is required as an intensive research experience that will typically involve the development of hypotheses, design of experiments, collection and interpretation of data, and oral and written presentations of research findings. Proposals for alternative types of capstone projects that do not involve original research, such as policy papers, or the production of educational videos, will be considered with the approval of the Head of Studies.

The Life Sciences Major also offers a 'Capstone-by-Coursework' option from AY2024/2025. This option requires two 4000-level, advanced topics courses, at least one of which must be taken in the 4th year of study. The two 4000-level capstone courses are in addition to the one 4000-level course taken as LS elective requirements. NUS 4000-level courses or higher (or any external courses offered by other universities abroad with the same levels) may be taken to fulfil one course-based requirement, subject to approval from the LS Head of Studies, or the Capstone coordinator.

Total Unit's = 55 (*a student may complete a min of 54 Unit if they have been approved to substitute courses read from NUS or from credit transfer*)

STRUCTURE OF THE MINOR - Class of 2025

Students must complete any 5 courses that are listed under Life Science as the primary major, that is, NOT cross-listed courses that are from another major. There are no other requirements.