



NUI Galway
OÉ Gaillimh

College of Science

BSc in Botany

The BSc in Botany covers all areas of study & scientific research involving plants. Plants & other photosynthetic organisms are the ultimate solar-powered biological systems selected by evolution. The study of botany and plant sciences will strategically position your career for emerging “green-economy” job opportunities in Ireland and internationally.

Botany and plant science involves the study of all plants, including algae (e.g. seaweeds to diatoms), mosses, ferns, gymnosperms (e.g. trees) & flowering plants (i.e. seed plants). This includes wild plants and also plants cultivated or grown by humans (e.g. crops). The study of plants also allows unique perspectives into the history and cultural evolution of societies across the globe.

Students will study plants at many levels including ecosystems, communities, species, individuals, tissues, cells and molecules (e.g. genetics, biochemistry and biotechnology). From the time of Gregor Mendel to the present, many of the most exciting and leading discoveries in genetics, biochemistry, molecular biology, cell biology, chemistry, physiology, biodiversity and ecology have been made by plant scientists.

Course Facts

Bachelor of Science (Undenominated)

CAO Code: GY301

Course level: 8

Entry points (2010): 345

Duration: 3 or 4 years

Average intake: 300

Entry requirements: Minimum HC3 in two subjects and passes in four other subjects at H or O Level in the Leaving Certificate including: Irish, English, Mathematics, a laboratory science subject (i.e. Chemistry, Physics, Biology, Physics with Chemistry (joint) or Agricultural Science) and any two other subjects recognised for entry purposes.

Did you know

NUI Galway has an advanced Research Cluster on Plant and Agri-Biosciences which is engaged in frontier research on plants, algae, trees, livestock and enzymes to develop the innovations necessary to transition to a more sustainable bio-based economy in Ireland and internationally (e.g. in developing countries).

Food (i.e. crop) production on the planet must double between now and 2050 to meet demand. This will require dramatic plant research innovations that allow humans to produce more food on less land with less resources. At present, in the EU the plant-based agro-food industry has a €600 billion annual turnover (1/5 of EU land use) and is the 3rd largest employment sector.

www.nuigalway.ie/botany

Course outline

Year 1: You study Biology with three other subjects. 1st year Biology significantly covers plant topics, including; plant & algal biodiversity; origins of life; evolution of plants & animals; plants for sustainable development; plant habitats; plant genetics & biotechnology; climate change & bioenergy; plant medicines & human health; plant conservation. Lectures supplemented with practical laboratory sessions.

Year 2: You study Botany modules along with two other subjects. Aquatic Plant Science covers fundamental biology, ecology & physiology of aquatic plants. Plants, Humans and the Environment covers (a) Plant Biosciences for Humanity and (b) Terrestrial Plant Ecology & Plant Systematics. In addition to lectures, laboratory based practicals are supplemented by a scientific study visit to the National Botanic Gardens, Glasnevin, Dublin.

Year 3: You take two major subjects (Botany and one other) plus one minor subject. Choose two of three modules; (a) Plant and Agri-Biosciences for Sustainable Development covering advanced training in genetics and biotechnology; (b) Applied Aquatic Plant Science covering economic and ecological importance of aquatic plants; (c) Plant Ecology and Paleoecology covering plant ecology & environmental change. Lectures supplemented with laboratory and field based practicals/courses.

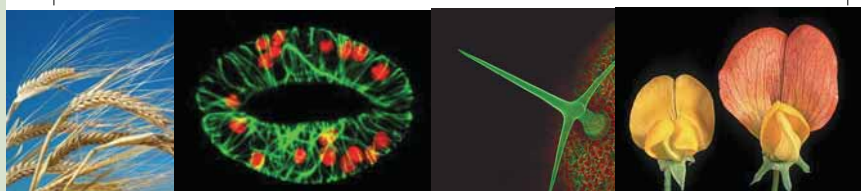
Year 4: You study advanced modules by leading-edge scientists in: (a) Advanced Topics in Algal Research; (b) Plant Evolution & Cell Biology; (c) Current Topics in Plant Science; (c) Plants, Atmosphere & Climate Change; (d) Applied Ecology (Ecology & Conservation Issues); and (e) Plant Genetics, Epigenetics & Biotechnology. You conduct your own 6-month research project on a specialised topic within a research groups in Botany and Plant Science and its affiliated entities. Mini research thesis forms part of the final degree examination.

Why study Botany?

Education & research on plants is the key biosciences topic for future sustainable development. The past and future of human civilisation is dependent on plants.

From providing oxygen in the atmosphere and carbon management, to providing food, feed, fibre, fuel (energy), building materials and medicines plants are essential to our very existence. Photosynthetic organisms can help us wean ourselves away from non-renewable petrochemicals (oil) towards a more sustainable bio-based economy and society.

Plant research innovations will be central to meeting our rapidly growing food, feed, fibre and fuel requirements as the planet's population shifts to 9 billion people by 2050. By studying botany and plant science you can develop the skills and expertise to contribute to future sustainable development in Ireland and internationally.



Career opportunities

The study of botany & plant sciences will strategically position your career for emerging "green-economy" job opportunities across biotechnology, breeding, genetics, bio-chemistry, agriculture, ecology, environmental monitoring, conservation, biodiversity, food, nutrition, agri-food, bioenergy, pharmaceutical, biomedical, education, bio-business, sustainable development, clean-tech, regulatory affairs & government policy sectors.

Botany and Plant Science are a student-focused discipline providing mentoring, CV & career guidance. Training is provided in independent critical thinking skills, including in science communication & entrepreneurship (business, social). Students can gain plant research & work experience during vacation breaks, with partner organisations in Ireland & internationally (including in developing countries). Interaction with employers & summer work experience opportunities are facilitated.

Graduate profile



Dr Maura Cannon
(NUIG BSc, 1967; PhD, 1972)

Maura is an Associate Professor of Plant Molecular Biology at the University of Massachusetts, USA.

"The eight years I spent studying science at NUIG provided me with the intellectual discipline, knowledge and confidence to address tough questions in plant molecular biology. For the past 10 years I have been conducting research to determine how plant cell walls assemble. The plant cell wall is the most important material for sustaining societies on planet earth; it provides most of the earth's food, feed, fibre, fuel and shelter. Plants know how to fabricate their walls and in my lab we are investigating how they do it. The commercial potential of such plant research is immense, and there are major career opportunities in Ireland and internationally for graduates who have a solid training in Botany and Plant Science, a tendency to ask questions, and the ambition to succeed."

School of Natural Sciences

The School of Natural Sciences comprises of five Disciplines: Biochemistry, Botany & Plant Science, Earth and Ocean Sciences, Microbiology and Zoology. All Disciplines have a strong tradition in excellence in research and teaching and allows flexibility for students to move across disciplines. Whether you are interested in the environmental sciences like geology and marine science or the molecular biosciences applied to humans, animals or plants, the School offers a perfect environment for your natural sciences interests.

Other courses

Courses which provide related topics with some components on botany and plant science topics include the BSc (Biotechnology), BSc (Marine Science) and the BSc (Environmental Science).

Find out more:

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