

## 15.2.4 Educational programmes on ecosystems (looking at wild flora and fauna) for local or national communities

### Number of Courses/Subjects Related to Sustainability Offered

Alexandria University offers a group of courses related to the environment and sustainability in various sectors, in line with the state's strategies to achieve sustainable development goals and to achieve the goals of linking science with industry and qualifying the graduate to find job opportunities commensurate with the field of specialization. The university works to qualify the graduate by providing various awareness and training programs during the study period. The university also provides a distinguished group of postgraduate programs that are compatible with their counterparts in international universities, as indicated by the indicator data for this standard.

### Marine & Coastal Biodiversity / Blue-Economy / Environmental Science Research

- AlexU offers an MSc program: **Sustainable Blue Economy and Management of Coastal Resources (SBECM)**. This program focuses on marine science, marine biodiversity, sustainable resource management, and coastal-zone conservation.
- Through SBECM and other marine science efforts, AlexU positions itself as a key player for Egypt's coastal biodiversity conservation — contributing to sustainable use of marine resources, coastal ecosystem protection, and blue economy.
- For example, in July 2024 students from one of the faculties participated in a cleanup effort of the **Eastern Harbour, Alexandria** — collecting waste, classifying and recycling trash, raising awareness about plastic pollution's threat to marine life, and improving coastal environmental quality. These efforts combine academic research, education, and community participation — vital ingredients for marine biodiversity conservation and sustainable coastal management.



An academic team (Ph.D.) from the Faculty of Science at Alexandria University teaches a course titled 'Man and Environment' (University Elective Course – 2 Credits). The course addresses environmental problems, types of natural resources, pollution, environmental footprint, carbon footprint, waste management, recycling, climate change and global warming, biodiversity, and the Sustainable

Development Goals (SDGs). It is offered to students from various faculties at Alexandria University, such as:

- 1) Faculty of Science
- 2) Faculty of Tourism
- 3) Faculty of Agriculture
- 4) Faculty of Sport Education
- 5) Faculty of Business
- 6) Faculty of Computers and Data Science
- 7) Faculty of Dentistry
- 8) Faculty of Economics and Political Science
- 9) Faculty of Arts
- 10) Faculty of Nursing

**Also, this course is offered in some programs at Alexandria National University, including:**

- A. Computer and Data Sciences (CDS) Programs
- B. Oral and Dental Surgery Program
- C. Software and Multimedia Production Program (SIM)

Courses focused on marine environments and the sustainability of marine ecosystems make use of the Research Yacht, located at the Faculty of Science in the Anfoushi area and equipped with a GPS system. Students and researchers utilize the yacht for field trips to collect samples and conduct essential studies. This access to the Research Yacht greatly supports the study, understanding, and conservation of marine life.

**Example of Programs and Courses/Subjects Related to Sustainability (Alexandria University, Egypt):**

- Marine pollution
- Coastal zone management
- Aquatic aquaculture
- Effect of climate changes on marine ecosystem
- Marine microbiology
- Marine biodiversity
- Regional oceanography
- Conservation and sustainable development of natural resources
- Environmental bioremediation
- Physicochemical Processes in Environmental Engineering
- Sustainable Built Environment
- Sustainable Water Resources Development
- Environmental Sampling and Analysis
- Unit Operation for Environmental Engineers
- Thermodynamics for Environmental Engineers
- Environmental Microbiology

- Environmental Aquatic Chemistry
- Environmental Organic Chemistry
- Climate Change
- The Nile; Environments, Limnology & Human Use
- Site Assessment and Remediation
- Climate Systems
- Advanced Environmental Engineering
- Integrated Environmental Assessment
- Environmental Impacts of Power Generation
- Environmental Sensor Informatics
- Cities and the Challenge of Sustainable Development
- Green Entrepreneurship and Agribusiness
- Sustainable Energy Resources and Management
- Sustainable Management of Marginal Drylands
- Sustainable Farming Systems: Hydro and Aquaponics
- Sustainable Development
- Environmental Hydrology
- Projects Management
- Fundamentals of environmental sciences
- Sustainable development
- Climate dynamics
- Climate change mitigation, vulnerability and adaptation
- Environmental economics and management
- Statistical analysis in climate research
- Economic valuation and climate change
- Green economy
- Geographical information systems applications in climate change
- Remote sensing and environmental change
- Environmental risk assessment and management
- Community engagement and sustainable development
- Climate change, biodiversity and ecosystems functions
- Climate change and health
- Urban environment
- Climate Change Management
- Numerical Modelling and tools
- GIS and Remote Sensing
- Research Methodology and Ethics
- Climate and Ocean Modelling
- Climate Smart Agriculture
- Nanotechnology and Climate Change
- Sustainable Blue Economy
- Coral Reefs and Climate Change
- Energy Efficiency Management in Maritime Industry
- Environmental Impact Assessment
- Integrated Coastal Zone Management
- Climate Change and Biodiversity
- Global Environmental Governance
- Strategic Planning and Project Management
- Quality and Safety Management Systems
- Climate Change effects on Coastal Dynamics

- Adaptation Strategies to Climate Change for Hydraulic Risk Prevention in Coastal Areas
- Climate Change Policy of the EU
- Adaptation and Mitigation to Climate Change in Spatial Planning
- Master of WasteWater Engineering Practice
- Master of Drinking Water Engineering Practice
- Master of Radiation Physics Practice
- Master of Petrochemicals and Hydrocarbon Processing Practice
- M.Eng. Water Recourse
- M.Eng. in Irrigation Structures
- M.Eng. in Environmental Engineering
- M.Eng. in Thermal Engineering
- M.Eng. in Combustion Engines
- M.Eng. in Electrical Energy Systems and Control
- M.Sc./Ph.D in Electrical Engineering (Electrical Power and Machines)
- Master of Climate Change and Sustainable Development
- International Master of Smart Environmental Management of Climate Change
- International Master of Natural Resources Sustainability for Land Development
- International Master of Sustainable Management of Fisheries and Aquaculture Science
- Environmental silviculture and tree – resources management
- Pest control & environment protection from cides pollution.
- Soil and water sciences
- Pesticides chemistry and technology
- Sustainable management of water resources
- Sustainable management of land resources
- Occupational Hygiene and Air Pollution
- Environmental Health
- Food Hygiene and Control
- Environmental Health
- Occupational Hygiene and Air Pollution
- Food Hygiene and Control
- Environmental Studies - Biological Science
- Climatic Change and Sustainable Development
- Environment and Energy
- Sustainable Cities

Above is a list of examples of programs and courses which aims to embed sustainability that are offered by the University. The total number of courses related to the environment and sustainability in the various sectors of the university, running in the academic year 2023 – 2024, according to the data received from the colleges and specified in previous detailed table, is **1496**, which represents approximately **11.1 percent** of the total number of courses for the undergraduate and graduate levels, in 25 Faculties and Institutes at the University.

In this context, the table below shows the total number of courses related to the environment and sustainability according to the specializations of the university's various faculties and institutes:

Sectors	Number of courses related to environment and sustainability	Total number of courses Offered during the academic year 2023/2024	Percentage of the number of courses related to environment and sustainability
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	Undergraduate studies	postgraduate studies	Undergraduate and postgraduate studies	
<b>Medical sector</b> (dental-pharmacy-nursing-veterinary medicine- - Medical Research Institute)	<b>136</b>	<b>463</b>		
<b>Basic sciences sector</b> (Engineering - Agriculture - Saba Pasha Agriculture - Science - Fine Arts - Specific Education - Graduate Institute)	<b>237</b>	<b>313</b>	<b>13520</b>	<b>11.1%</b>
<b>Humanities sector</b> (Commerce - Arts - Tourism and Hotels - Education - Law - Physical Education for Boys - Physical Education for Girls - Early Childhood Education)	<b>223</b>	<b>124</b>		
<b>Total numbers</b>	<b>596</b>	<b>900</b>		

The National Alexandria University was established last academic year (2022/2023) & (2023/2024), with 9 undergraduate Programs (attached is a list of the new programs). The National Alexandria University programs refer to educational programs offered by Alexandria University, which is a public university located in Alexandria, Egypt. However, public universities like Alexandria University do offer programs that are funded by the government, and students pay lower tuition fees compared to private institutions.

**Study begins at Alexandria National University at its headquarters in New Smouha, starting from the academic year 2022/2023 and continuing in the academic year 2023/2024 in nine programs that grant bachelor's degrees, as follows:**

- 1 - College of Medicine - Medicine and Surgery Program.
- 2 - College of Dentistry - Oral and Dental Medicine and Surgery Program.
- 3 - College of Pharmacy - Pharm de Clinical Program.
- 4- College of Engineering (Architecture and Construction Program - Computers and Communications Program -Mechatronics and Robotics Engineering Program).
- 5- College of Computer and Data Sciences (Cybersecurity Program - Smart Systems Program).
- 6 - College of Science - Software and Multimedia Industry Program.

The total number of courses **at the new Alexandria National University** in the academic year 2022/2023 & 2023/2024 are ~~531~~courses.

College	Program	Total number of courses
College of Medicine	Medicine and Surgery Program	49
College of Dentistry	Oral and Dental Medicine and Surgery Program	75
College of Pharmacy	Pharm de Clinical Program	66

College of Engineering	- Architecture and Construction Program	55
	- Computers and Communications Program	101
	- Mechatronics and Robotics Engineering Program	84
College of Computer and Data Sciences	Cybersecurity Program - Smart Systems Program	48
College of Science	Software and Multimedia Industry Program	53

## Number of courses in each college that are related to sustainability

