



ManGrowth Course 2023 – Programme September 11 – October 11, 2023

DAY A (09/09/2023)	Arrival of Italian students in Maputo.	
DAY B (09/10/2023)	Arrival of Italian and Mozambican students in Inhaca.	
DAY 1 (09/11/2023)	Opening Intensive course “ManGrowth – Preservation of Ecosystems for Sustainable Development”	
Breakfast time		
08:00 (Maputo time)	Course start: welcome words, presentation of first-week professors and participating students. Instructions and recommendations.	Prof. Macamo and Ramoni
09:00 – 12:00	Practical session. Proposal of projects by the three invited professors. Formation of student groups. Selection of the responsible student for each project. Discussion of the methodologies to be implemented.	Prof. Hamza, Macamo, and Orlandoni
Lunch time		
13:00 – 15:00	<i>Module I – Introduction to mangroves.</i> What they are, global distribution, global importance.	Prof. Macamo
15:00 – 17:00	<i>Module II – Community carbon financing.</i> Background of carbon financing. International frameworks that allow for carbon markets. General Requirements for a carbon project.	Prof. Hamza
17:00 – 19:00	<i>Module III – The economics of the mangroves: The special case of Maputo.</i> Economics of Environmental and Natural Resources (NR): Basic concepts and NR typology.	Prof. Orlandoni
Dinner time		
20:00 –	Activities related to the project (data analysis, literature searching, report writing, etc.)	
DAY 2 (09/12/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Hamza, Macamo, and Orlandoni
Lunch time		
13:00 – 15:00	<i>Module I – Mangroves.</i> Occurrence and distribution in Mozambique (historical)	Prof. Macamo
15:00 – 17:00	<i>Module II – Community carbon financing.</i> Compliance and Voluntary Carbon Markets.	Prof. Hamza
17:00 – 19:00	<i>Module III – The economics of the mangroves.</i> Economics of Environmental and Natural Resources: Elements of economy applied to the study of NR.	Prof. Orlandoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 3 (09/13/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Hamza, Macamo, and Orlandoni
Lunch time		



13:00 – 15:00	<i>Module I – Mangroves.</i> Specific species composition (flora and associated species).	Prof. Macamo
15:00 – 17:00	<i>Module II – Community carbon financing.</i> General requirements for a carbon project 1: Project development (baseline studies, stakeholders' consultations).	Prof. Hamza
17:00 – 19:00	<i>Module III – The economics of the mangroves.</i> Economic Valuation (EV) of Environmental Resources: Economic concepts, main EV methodologies.	Prof. Orlandoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 4 (09/14/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Hamza, Macamo, and Orlandoni
Lunch time		
13:00 – 15:00	<i>Module I – Mangroves.</i> Ecological and social services (providing specific numbers and studies from Mozambique)	Prof. Macamo
15:00 – 17:00	<i>Module II – Community carbon financing.</i> General requirements for a carbon project 1: Project development (components of Project Idea Note (PIN) and Project Design Document (PDD); project verification/validation).	Prof. Hamza
17:00 – 19:00	<i>Module III – The economics of the mangroves.</i> Economic Valuation (EV) of Environmental Resources: Environmental management (concepts and examples).	Prof. Orlandoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 5 (09/15/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Hamza, Macamo, and Orlandoni
Lunch time		
13:00 – 15:00	<i>Module I – Mangroves.</i> Threats and impacts (in Mozambique)	Prof. Macamo
15:00 – 17:00	<i>Module II – Community carbon financing.</i> General requirements for a carbon project 1: Project implementation (Projects' activities).	Prof. Hamza
17:00 – 19:00	<i>Module III – The economics of the mangroves.</i> Contingent valuation applications: basic statistical tools, descriptive statistics, construction of questionnaires.	Prof. Orlandoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 6 (09/16/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	
Lunch time		
13:00 – 15:00	<i>Module I – Mangroves.</i> Governance (including responses to threats)	Prof. Macamo
15:00 – 17:00	<i>Module II – Community carbon financing.</i> General requirements for a carbon project 1: Project implementation (annual reporting, external verification).	Prof. Hamza
17:00 – 19:00	<i>Module III – The economics of the mangroves.</i> Contingent valuation applications: Regression methods, logistic regression.	Prof. Orlandoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 7 (09/17/2023)		
Breakfast time		



08:00 – 12:00	Practical session. Development of the projects.	Prof. Hamza, Macamo, and Orlandoni
Lunch time		
13:00 – 15:00	<i>Module I – Mangroves.</i> Mangroves: a Noah Ark.	Prof. Macamo
15:00 – 17:00	<i>Module II – Community carbon financing.</i> Exercise on PIN/PDD	Prof. Hamza
17:00 – 19:00	<i>Module III – The economics of the mangroves.</i> Contingent valuation applications: Use of computing tools: applications using, Stata and/or R and R Studio software.	Prof. Orlandoni
Dinner time		
20:00 –	Seminars corresponding to the projects of the first week.	
DAY 8 (09/18/2023)		
Breakfast time		
08:00 – 12:00	Presentation of the second-week professors. Practical session. Proposal of projects by the three invited professors. Formation of student groups. Selection of the responsible student for each project. Discussion of the methodologies to be implemented.	Prof. Di Franco, Cannicci, Ramoni
Lunch time		
13:00 – 15:00	<i>Module IV – Crustaceans and mangroves.</i> Introduction on the phylogeny, morphology and physiology of mangrove crustaceans, with particular focus on true crabs (Brachyurans)	Prof. Cannicci
15:00 – 17:00	<i>Module V – Fishes and mangroves.</i> Introduction to ichthyology.	Prof. Di Franco
17:00 – 19:00	<i>Module VI – Mangroves: A bird's paradise.</i> Introduction to ornithology.	Prof. Ramoni
Dinner time		
20:00 –	Activities related to the project (data analysis, literature searching, report writing, etc.)	
DAY 9 (09/19/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Di Franco, Cannicci, Ramoni
Lunch time		
13:00 – 15:00	<i>Module IV – Crustaceans and mangroves.</i> A crash-course guide to the identification of the crustacean species common in Mozambican mangroves.	Prof. Cannicci
15:00 – 17:00	<i>Module V – Fishes and mangroves.</i> Fish anatomy and physiology.	Prof. Di Franco
17:00 – 19:00	<i>Module VI – Mangroves: A bird's paradise.</i> Bird identification basics.	Prof. Ramoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 10 (09/20/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Di Franco, Cannicci, Ramoni
Lunch time		
13:00 – 15:00	<i>Module V – Crustaceans and mangroves.</i> Mangrove crabs monitoring: in field strategies and survey techniques.	Prof. Cannicci
15:00 – 17:00	<i>Module IV – Fishes and mangroves.</i> Fish identification techniques.	Prof. Di Franco
17:00 – 19:00	<i>Module VI – Mangroves: A bird's paradise.</i> Birds and mangroves.	Prof. Ramoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 11 (09/21/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Di Franco, Cannicci, Ramoni



Lunch time		
13:00 – 15:00	<i>Module IV – Crustaceans and mangroves.</i> Mangrove crabs: morphological and physiological adaptations to life in unusual intertidal forests.	Prof. Cannicci
15:00 – 17:00	<i>Module V – Fishes and mangroves.</i> Fish behaviour and ecology.	Prof. Di Franco
17:00 – 19:00	<i>Module VI – Mangroves: A bird's paradise.</i> Avian monitoring techniques.	Prof. Ramoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 12 (09/22/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Di Franco, Cannicci, Ramoni
Lunch time		
13:00 – 15:00	<i>Module IV – Crustaceans and mangroves.</i> Behavioral adaptations of mangrove crabs: the ecological roles of crabs within the mangrove ecosystem.	Prof. Cannicci
15:00 – 17:00	<i>Module V – Fishes and mangroves.</i> Fish diversity in various aquatic ecosystems with emphasis on mangroves.	Prof. Di Franco
17:00 – 19:00	<i>Module VI – Mangroves: A bird's paradise.</i> A primer on bioacoustics.	Prof. Ramoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 13 (09/23/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Cannicci, Di Franco, Ramoni
Lunch time		
13:00 – 15:00	<i>Module IV – Crustaceans and mangroves.</i> The role of mangrove fauna in Mangrove ecosystem services provision	Prof. Cannicci
15:00 – 17:00	<i>Module V – Fishes and mangroves.</i> Fish ecology and trophic interactions.	Prof. Di Franco
17:00 – 19:00	<i>Module VI – Mangroves: A bird's paradise.</i> Overview of avian population dynamics.	Prof. Ramoni
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 14 (09/24/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Di Franco, Cannicci, Ramoni
Lunch time		
13:00 – 15:00	<i>Module V – Crustaceans and mangroves.</i> The way forward: identifications of gaps in mangrove crab's knowledge and ideas for future research.	Prof. Cannicci
15:00 – 17:00	<i>Module IV – Fishes and mangroves.</i> Conservation importance and challenges.	Prof. Di Franco
17:00 – 19:00	<i>Module VI – Mangroves: A bird's paradise.</i> Threats to avian populations.	Prof. Ramoni
Dinner time		
20:00 –	Seminars corresponding to the projects of the second week.	
DAY 15 (09/25/2023)		
Breakfast time		
08:00 – 12:00	Presentation of the third-week professors. Practical session. Proposal of projects by the three invited professors. Formation of student groups. Selection of the responsible student for each project. Discussion of the methodologies to be implemented.	Prof. Bourgeois, Maděra, Mandujano
Lunch time		
13:00 – 15:00	<i>Module VII – Mangrove restoration.</i> Introduction to mangrove restoration.	Prof. Bourgeois
15:00 – 17:00	<i>Module IIX – Forest ecology and conservation.</i> From the tree to the forest	Prof. Maděra



17:00 – 19:00	<i>Module IX – Ecological concepts for wildlife conservation and management.</i> General concepts of biodiversity and importance for conservation.	Prof. Mandujano
Dinner time		
20:00 –	Activities related to the project (data analysis, literature searching, report writing, etc.)	
DAY 16 (09/26/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Bourgeois, Maděra, Mandujano
Lunch time		
13:00 – 15:00	<i>Module VII – Mangrove restoration.</i> Understanding mangrove degradation and threats.	Prof. Bourgeois
15:00 – 17:00	<i>Module IIX – Forest ecology and conservation.</i> Forest structure and biomass.	Prof. Maděra
17:00 – 19:00	<i>Module IX – Ecological concepts for wildlife conservation and management.</i> Introduction to the conservation of threatened species and populations.	Prof. Mandujano
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 17 (09/27/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Bourgeois, Maděra, Mandujano
Lunch time		
13:00 – 15:00	<i>Module VII – Mangrove restoration.</i> Principles of mangrove restoration planning.	Prof. Bourgeois
15:00 – 17:00	<i>Module IIX – Forest ecology and conservation.</i> Significance of forests for biodiversity.	Prof. Maděra
17:00 – 19:00	<i>Module IX – Ecological concepts for wildlife conservation and management.</i> Population ecology applied to wildlife management.	Prof. Mandujano
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 18 (09/28/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Bourgeois, Maděra, Mandujano
Lunch time		
13:00 – 15:00	<i>Module VII – Mangrove restoration.</i> Mangrove restoration techniques: natural regeneration and active planting.	Prof. Bourgeois
15:00 – 17:00	<i>Module IIX – Forest ecology and conservation.</i> Mangrove forests.	Prof. Maděra
17:00 – 19:00	<i>Module IX – Ecological concepts for wildlife conservation and management.</i> Analysis of the distribution and abundance of meta(populations) at different geographic, ecological and administrative scales.	Prof. Mandujano
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 19 (09/29/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Bourgeois, Maděra, Mandujano
Lunch time		



13:00 – 15:00	<i>Module VII – Mangrove restoration.</i> Monitoring and evaluating mangrove restoration projects.	Prof. Bourgeois
15:00 – 17:00	<i>Module IIX – Forest ecology and conservation.</i> Forest restoration.	Prof. Maděra
17:00 – 19:00	<i>Module IX – Ecological concepts for wildlife conservation and management.</i> Field methods for monitoring wildlife.	Prof. Mandujano
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 20 (09/30/2023)		
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Bourgeois, Maděra, Mandujano
Lunch time		
13:00 – 15:00	<i>Module VII – Mangrove restoration.</i> Stakeholder engagement and community involvement in mangrove restoration.	Prof. Bourgeois
15:00 – 17:00	<i>Module IIX – Forest ecology and conservation.</i> Forest dynamic and its monitoring.	Prof. Maděra
17:00 – 19:00	<i>Module IX – Ecological concepts for wildlife conservation and management.</i> Introduction to the concepts and study of animal behaviour.	Prof. Mandujano
Dinner time		
20:00 –	Activities related to the projects (data analysis, literature searching, report writing, etc.)	
DAY 21 (10/01/2023)	Last day of activities on Inhaca Island	
Breakfast time		
08:00 – 12:00	Practical session. Development of the projects.	Prof. Bourgeois, Maděra, Mandujano
Lunch time		
13:00 – 15:00	<i>Module VII – Mangrove restoration.</i> Challenges and limitations in mangrove restoration.	Prof. Bourgeois
15:00 – 17:00	<i>Module IIX – Forest ecology and conservation.</i> Sustainable forestry.	Prof. Maděra
17:00 – 19:00	<i>Module IX – Ecological concepts for wildlife conservation and management.</i> Ecology, conservation and management of medium and large mammals.	Prof. Mandujano
Dinner time		
20:00 –	Seminars corresponding to the projects of the third week.	
DAY C (10/02/2023)	All professors and students leave Inhaca Island	
DAY D (10/03/2023)	The students and coordinators depart for Rome	
DAY E (10/04/2023)	The students and coordinators arrive in Rome	
DAY 22 (10/05/2023)	First day of activities at the laboratories of La Sapienza.	
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	
DAY 23 (10/06/2023)		
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	



DAY F (10/07/2023)	Weekend	
DAY G (10/08/2023)	Weekend	
DAY 24 (10/09/2023)		
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	
DAY 25 (10/10/2023)		
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	
DAY 26 (10/11/2023)	Official closure of the course	
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
18.00 – 19.00	Activities related to the lab sessions (report writing, etc.)	
19.00	Closing of intensive course “ManGrowth – Preservation of Ecosystems for Sustainable Development”. Certificate Award Ceremony	
Dinner time		

DAY 27 (10/12/2023)	Start of the optional week	
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	
DAY 28 (10/13/2023)		
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	
DAY H (10/14/2023)	Weekend	
DAY I (10/15/2023)	Weekend	
DAY 29 (10/16/2023)		
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	



DAY 30 (10/17/2023)		
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Activities related to the lab sessions (report writing, etc.)	
DAY 31 (10/18/2023)	Last day of activities in Rome.	
Breakfast time		
08:00 – 12:00	Soil analysis of mangroves at the Geochemistry Laboratory, La Sapienza.	Prof. Barbieri
Lunch time		
14:00 – 18:00	Analysis of plant samples at the Laboratory of Plant Pathology and Mycology, La Sapienza	Prof. Reverberi
Dinner time		
19 –	Closure	
DAY J (10/19/2023)	The Mozambican participants return to Mozambique.	

Please note that this syllabus can be further customized based on the specific goals, duration, and resources available for the course.