



NUI Galway
OÉ Gaillimh

College of Science

Science Postgraduate Programmes

- Taught and Research



At the frontiers of knowledge

GYS01

Course Outline

M.Sc. (Agriculture, Climate Change and Transitions)



www.nuigalway.ie/science/about-science



NUI Galway
OÉ Gaillimh

APPROVED

ACC1 MSc in Agriculture, Climate Change & Transitions

Awards

No Programme Award Assigned

Course Stream Code:	ACC1	Mode of Delivery:	Taught - Full Time	No. of Semesters :	2
NFQ Level:	9	EQF Level:	7	EHEA Level:	Second Cycle
Embedded Award:	No				
Language of Instruction:	English				
Valid From:	2016-17 (01-09-16 – 31-08-17)				
Course:	MSc in Agricultural Climate Change & Transitions				
Discipline:	College of Science				
Location:	NUIG				
Course Stream Director:	CHARLES SPILLANE				
Educational Aim of Course Stream:	n/a				
Clearing House Code:	1. GYS01				

Semester Schedules

Year 1 / Location: NUIG / 55 ECTS / Semester 1

Core													
Mod Code	Module Title	Co-ordinator	Level	ECTS Credits	FT Contact Hours	PT Contact Hours	Written Assessment	Continuous Assessment	Oral, Audio Visual or Practical Assessment	Department-based Assessment	Research	Study Abroad	Computer-based Assessment
PAB5104	Gender, Agriculture & Climate Change (Approved)		9	5	1.67	0.00	50	50	0	0	0	0	0
PAB5117	Understanding Ireland's Agriculture & AgriFood Sector (Approved) (Part 1 of 2)		9	5	1.50	0.00	0	100	0	0	0	0	0
PAB5115	AgriFood Sustainability & Agri-Resilience Challenges (Approved) (Part 1 of 2)		9	5	0.83	0.00	0	50	50	0	0	0	0
PAB5116	Understanding AgriBusiness & AgriFood Market Trends (Approved) (Part 1 of 2)		9	5	0.83	0.00	0	50	50	0	0	0	0
PAB5101	Climate Change, Agricultural & Global Food Security (Approved)		9	5	1.67	0.00	50	50	0	0	0	0	0
PAB3101	Soil Science (Approved)		8	5	2.17	0.00	60	40	0	0	0	0	0
PAB5111	PAB5111 CCAFS Perspectives (Approved) (Part 1 of 2)		9	5	1.58	0.00	0	100	0	0	0	0	0

Year 1 / Location: NUIG / 55 ECTS / Semester 2

Core														
Mod Code	Module Title	Co-ordinator	Level	ECTS Credits	FT Contact Hours	PT Contact Hours	Written Assessment	Continuous Assessment	Oral, Audio Visual or Practical Assessment	Department-based Assessment	Research	Study Abroad	Computer-based Assessment	
PAB5110	CCAFS Science Communication (Approved)		9	5	1.67	0.00	0	100	0	0	0	0	0	
PAB5109	PAB5109 AgriBiological Responses to Climate Change (Approved)		9	5	1.67	0.00	50	50	0	0	0	0	0	
PAB5108	Climate Change, Natural Resources & Livelihoods (Approved)		9	5	1.67	0.00	100	0	0	0	0	0	0	
PAB4104	Plant and Agri-Biotechnologies (Approved)		8	5	1.67	0.00	100	0	0	0	0	0	0	
PAB5117	Understanding Ireland's Agriculture & AgriFood Sector (Approved) (Part 2 of 2)		9	5	1.50	0.00	0	100	0	0	0	0	0	
PAB5115	AgriFood Sustainability & Agri-Resilience Challenges (Approved) (Part 2 of 2)		9	5	0.83	0.00	0	50	50	0	0	0	0	
PAB5116	Understanding AgriBusiness & AgriFood Market Trends (Approved) (Part 2 of 2)		9	5	0.83	0.00	0	50	50	0	0	0	0	
PAB5111	PAB5111 CCAFS Perspectives (Approved) (Part 2 of 2)		9	5	1.58	0.00	0	100	0	0	0	0	0	

Year 1 Awards :

Degree of Master of Science (Exit Only)

PO Delivery Using DETAILED Mappings

		Programme Outcome Domains	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
M/E	Supporting Modules									
CORE	PAB5104: Gender, Agriculture & Climate Change		✓ 1	✓ 4	✓ 3	✓ 6	✓ 2	✓ 2	✓ 1	✓ 2
CORE	PAB5117: Understanding Ireland's Agriculture & AgriFood Sector		✓ 2		✓ 1		✓ 2	✓ 2	✓ 3	
CORE	PAB5115: AgriFood Sustainability & Agri-Resilience Challenges		✓ 1	✓ 3	✓ 2	✓ 4	✓ 4	✓ 2	✓ 1	✓ 2
CORE	PAB5116: Understanding AgriBusiness & AgriFood Market Trends		✓ 1		✓ 1		✓ 1	✓ 2		
CORE	PAB5101: Climate Change, Agricultural & Global Food Security		✓ 4	✓ 4	✓ 4	✓ 4	✓ 4	✓ 2	✓ 4	✓ 4
CORE	PAB3101: Soil Science		✓ 1	✓ 2	✓ 2	✓ 5	✓ 3		✓ 1	✓ 1
CORE	PAB5111: PAB5111 CCAFS Perspectives		✓ 2	✓ 2	✓ 5	✓ 5		✓ 5	✓ 5	
CORE	PAB5110: CCAFS Science Communication		✓ 3		✓ 3			✓ 5	✓ 5	✓ 5
CORE	PAB5109: PAB5109 AgriBiological Responses to Climate Change		✓ 3	✓ 5	✓ 5	✓ 4	✓ 5	✓ 1	✓ 1	✓ 5
CORE	PAB5108: Climate Change, Natural Resources & Livelihoods		✓ 5	✓ 5	✓ 3	✓ 4	✓ 5	✓ 5		✓ 5
CORE	PAB4104: Plant and Agri-Biotechnologies		✓ 3	✓ 3	✓ 3	✓ 3	✓ 3		✓ 1	✓ 3

PO1.: Knowledge - Breadth

1. a broad and in-depth understanding of agricultural transitions needed for climate change response in Europe and globally
2. the ability to identify and assess agricultural and rural development and food security options in a given environment

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	LO 1: Understand climate change and gender linked ramifications in four pillars of food security: food availability, food accessibility, food utilization and food systems stability.
PAB5117 - Understanding Ireland's Agriculture & AgriFood Sector	LO 1: Summarise the main factors which have affected the development of agriculture in Ireland LO 2: Explain the linkages between agri-related research across different research areas;
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	LO 1: Describe the major sustainability and resilience challenges facing the agriculture and agrifood sector globally
PAB5116 - Understanding AgriBusiness & AgriFood Market Trends	LO 1: Summarise the dynamics of national and international agrifood markets and trends
PAB5101 - Climate Change, Agricultural & Global Food Security	LO 1: Demonstrate knowledge of the current climate change challenges regarding sustainable global development. LO 2: Display a clear understanding of the implications of these challenges on sustainable production and global food security. LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation. LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.
PAB3101 - Soil Science	LO 1: Critically assess the importance of links between plant and crop communities and their prevailing environment, including climate, soil type, and the availability of water and nutrients.
PAB5111 - PAB5111 CCAFS Perspectives	LO 1: Consider how different disciplines and sectors have differing perspectives regarding climate change, agriculture and food security LO 2: Appreciate how presentations and case studies on CCAFS topics can be differently framed by different sectors and disciplines

Supporting Modules	
PAB5110 - CCAFS Science Communication	<p>LO 1: Critically evaluate which sources of information regarding climate change, agriculture and food security are most reliable and trustworthy.</p> <p>LO 2: Discuss a technical scientific topic for various audiences through news print, broadcast and social media</p> <p>LO 3: Identify key approaches and constraints for environmental and risk communication regarding CCAFS</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p> <p>LO 3: Describe how susceptibility to, or tolerance of stress can explain plant survival and habitat preferences</p> <p>LO 5: Describe different plant stresses and the implications for global crop productivity.</p>
PAB5108 - Climate Change, Natural Resources & Livelihoods	<p>LO 1: Describe which social or economic groups within the community are particularly vulnerable to climate change</p> <p>LO 2: Evaluate which resources are most important to the livelihoods of different social groups</p> <p>LO 3: Identify how current climate hazards affect livelihoods and related resources of different groups</p> <p>LO 4: Assess which livelihoods resources are most vulnerable to climate change</p> <p>LO 5: Investigate adaptation and mitigation strategies to maintain viable livelihoods when faced with climate change challenges</p>
PAB4104 - Plant and Agri-Biotechnologies	<p>LO 1: To provide an advanced understanding of the range and applications of plant and agricultural biotechnologies for meeting human needs.</p> <p>LO 2: To be able to describe plant and livestock improvement strategies using biotechnological approaches.</p> <p>LO 3: To consider how biotechnological approaches can be used to meet agricultural and sustainability challenges.</p>

PO2.: Knowledge - Kind

3. an interdisciplinary understanding of climate change, its potential impact on agriculture with a specific focus on developing countries

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	<p>LO 1: Understand climate change and gender linked ramifications in four pillars of food security: food availability, food accessibility, food utilization and food systems stability.</p> <p>LO 2: Outline gender linked differences in other key issues in the context of climate change (water, health, migration patterns due to environmental degradation)</p> <p>LO 3: Underline the importance of involving women as agents of change in climate change responses and incorporate gender perspectives in research agendas, information, and climate change responses.</p> <p>LO 4: Appreciate the gender-relevance of frameworks for policy analysis, databases, methods and ex ante impact assessment for planning responses to climate change in agriculture.</p>
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	<p>LO 1: Describe the major sustainability and resilience challenges facing the agriculture and agrifood sector globally</p> <p>LO 3: Identify research priorities and opportunities for improving sustainability and resilience of agriculture and agrifood systems</p> <p>LO 4: Have an improved understanding how different research skills and inter-disciplinary approaches can develop and deliver agri-sustainability innovations</p>
PAB5101 - Climate Change, Agricultural & Global Food Security	<p>LO 1: Demonstrate knowledge of the current climate change challenges regarding sustainable global development.</p> <p>LO 2: Display a clear understanding of the implications of these challenges on sustainable production and global food security.</p> <p>LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation.</p> <p>LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.</p>
PAB3101 - Soil Science	<p>LO 1: Critically assess the importance of links between plant and crop communities and their prevailing environment, including climate, soil type, and the availability of water and nutrients.</p> <p>LO 5: Relate different soils to their possible agricultural uses, and consider the possible environmental impacts of these.</p>

Supporting Modules	
PAB5111 - PAB5111 CCAFS Perspectives	<p>LO 2: Appreciate how presentations and case studies on CCAFS topics can be differently framed by different sectors and disciplines</p> <p>LO 3: Critically review case studies and perspectives in the context of CCAFS challenges</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p> <p>LO 2: Discuss the difference between avoidance, acclimation and adaptation</p> <p>LO 3: Describe how susceptibility to, or tolerance of stress can explain plant survival and habitat preferences</p> <p>LO 4: Summarise photosynthetic pathways and how they are affected by different environmental conditions, including climate change</p> <p>LO 5: Describe different plant stresses and the implications for global crop productivity.</p>
PAB5108 - Climate Change, Natural Resources & Livelihoods	<p>LO 1: Describe which social or economic groups within the community are particularly vulnerable to climate change</p> <p>LO 2: Evaluate which resources are most important to the livelihoods of different social groups</p> <p>LO 3: Identify how current climate hazards affect livelihoods and related resources of different groups</p> <p>LO 4: Assess which livelihoods resources are most vulnerable to climate change</p> <p>LO 5: Investigate adaptation and mitigation strategies to maintain viable livelihoods when faced with climate change challenges</p>
PAB4104 - Plant and Agri-Biotechnologies	<p>LO 1: To provide an advanced understanding of the range and applications of plant and agricultural biotechnologies for meeting human needs.</p> <p>LO 2: To be able to describe plant and livestock improvement strategies using biotechnological approaches.</p> <p>LO 3: To consider how biotechnological approaches can be used to meet agricultural and sustainability challenges.</p>

PO3.: Skill - Range

4. an understanding of the interdisciplinary scientific research & action needed for social, technical and institutional innovations in agricultural development issues

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	<p>LO 3: Underline the importance of involving women as agents of change in climate change responses and incorporate gender perspectives in research agendas, information, and climate change responses.</p> <p>LO 4: Appreciate the gender-relevance of frameworks for policy analysis, databases, methods and ex ante impact assessment for planning responses to climate change in agriculture.</p> <p>LO 5: Generate ideas for gender sensitive responses to the effects of climate change – in technology developments and financing mechanisms (gender analysis of budget lines and financial instruments for climate change, gender-sensitive investments in programmes for adaptation, mitigation, technology transfer and capacity building).</p>
PAB5117 - Understanding Ireland's Agriculture & AgriFood Sector	<p>LO 2: Explain the linkages between agri-related research across different research areas;</p>
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	<p>LO 3: Identify research priorities and opportunities for improving sustainability and resilience of agriculture and agrifood systems</p> <p>LO 4: Have an improved understanding how different research skills and inter-disciplinary approaches can develop and deliver agri-sustainability innovations</p>
PAB5116 - Understanding AgriBusiness & AgriFood Market Trends	<p>LO 5: Appreciate the contribution of different disciplines and research approaches for developing and implementing a business plan for an agrifood product or service</p>
PAB5101 - Climate Change, Agricultural & Global Food Security	<p>LO 1: Demonstrate knowledge of the current climate change challenges regarding sustainable global development.</p> <p>LO 2: Display a clear understanding of the implications of these challenges on sustainable production and global food security.</p> <p>LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation.</p> <p>LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.</p>

Supporting Modules	
PAB3101 - Soil Science	<p>LO 1: Critically assess the importance of links between plant and crop communities and their prevailing environment, including climate, soil type, and the availability of water and nutrients.</p> <p>LO 5: Relate different soils to their possible agricultural uses, and consider the possible environmental impacts of these.</p>
PAB5111 - PAB5111 CCAFS Perspectives	<p>LO 1: Consider how different disciplines and sectors have differing perspectives regarding climate change, agriculture and food security</p> <p>LO 2: Appreciate how presentations and case studies on CCAFS topics can be differently framed by different sectors and disciplines</p> <p>LO 3: Critically review case studies and perspectives in the context of CCAFS challenges</p> <p>LO 4: Present and discuss opinions in an open forum as a group and individually.</p> <p>LO 5: Learn how to present questions to different CCAFS stakeholders and to engage in dialogue with other disciplines/sectors regarding CCAFS topics</p>
PAB5110 - CCAFS Science Communication	<p>LO 1: Critically evaluate which sources of information regarding climate change, agriculture and food security are most reliable and trustworthy.</p> <p>LO 2: Discuss a technical scientific topic for various audiences through news print, broadcast and social media</p> <p>LO 5: Consider different approaches for the analysis and implementation of effective science communication</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p> <p>LO 2: Discuss the difference between avoidance, acclimation and adaptation</p> <p>LO 3: Describe how susceptibility to, or tolerance of stress can explain plant survival and habitat preferences</p> <p>LO 4: Summarise photosynthetic pathways and how they are affected by different environmental conditions, including climate change</p> <p>LO 5: Describe different plant stresses and the implications for global crop productivity.</p>

Supporting Modules	
PAB5108 - Climate Change, Natural Resources & Livelihoods	<p>LO 2: Evaluate which resources are most important to the livelihoods of different social groups</p> <p>LO 3: Identify how current climate hazards affect livelihoods and related resources of different groups</p> <p>LO 5: Investigate adaptation and mitigation strategies to maintain viable livelihoods when faced with climate change challenges</p>
PAB4104 - Plant and Agri-Biotechnologies	<p>LO 1: To provide an advanced understanding of the range and applications of plant and agricultural biotechnologies for meeting human needs.</p> <p>LO 2: To be able to describe plant and livestock improvement strategies using biotechnological approaches.</p> <p>LO 3: To consider how biotechnological approaches can be used to meet agricultural and sustainability challenges.</p>

PO4.: Skill - Selectivity

5. effective engagement in climate smart agricultural development and natural resource management.

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	<p>LO 1: Understand climate change and gender linked ramifications in four pillars of food security: food availability, food accessibility, food utilization and food systems stability.</p> <p>LO 2: Outline gender linked differences in other key issues in the context of climate change (water, health, migration patterns due to environmental degradation)</p> <p>LO 3: Underline the importance of involving women as agents of change in climate change responses and incorporate gender perspectives in research agendas, information, and climate change responses.</p> <p>LO 4: Appreciate the gender-relevance of frameworks for policy analysis, databases, methods and ex ante impact assessment for planning responses to climate change in agriculture.</p> <p>LO 5: Generate ideas for gender sensitive responses to the effects of climate change – in technology developments and financing mechanisms (gender analysis of budget lines and financial instruments for climate change, gender-sensitive investments in programmes for adaptation, mitigation, technology transfer and capacity building).</p> <p>LO 6: Outline how governments can incorporate gender perspectives into their interventions on climate change</p>
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	<p>LO 1: Describe the major sustainability and resilience challenges facing the agriculture and agrifood sector globally</p> <p>LO 2: Describe the major sustainability and resilience challenges facing the agriculture and agrifood sector in Ireland</p> <p>LO 3: Identify research priorities and opportunities for improving sustainability and resilience of agriculture and agrifood systems</p> <p>LO 4: Have an improved understanding how different research skills and inter-disciplinary approaches can develop and deliver agri-sustainability innovations</p>
PAB5101 - Climate Change, Agricultural & Global Food Security	<p>LO 1: Demonstrate knowledge of the current climate change challenges regarding sustainable global development.</p> <p>LO 2: Display a clear understanding of the implications of these challenges on sustainable production and global food security.</p> <p>LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation.</p> <p>LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.</p>

Supporting Modules	
PAB3101 - Soil Science	<p>LO 1: Critically assess the importance of links between plant and crop communities and their prevailing environment, including climate, soil type, and the availability of water and nutrients.</p> <p>LO 2: Relate the characters of plant communities to variation in nutrient status, soil and salinity.</p> <p>LO 3: Describe, measure and calculate key characteristics of soils from different habitats.</p> <p>LO 4: Make and interpret soil profiles and texture triangles.</p> <p>LO 5: Relate different soils to their possible agricultural uses, and consider the possible environmental impacts of these.</p>
PAB5111 - PAB5111 CCAFS Perspectives	<p>LO 1: Consider how different disciplines and sectors have differing perspectives regarding climate change, agriculture and food security</p> <p>LO 2: Appreciate how presentations and case studies on CCAFS topics can be differently framed by different sectors and disciplines</p> <p>LO 3: Critically review case studies and perspectives in the context of CCAFS challenges</p> <p>LO 4: Present and discuss opinions in an open forum as a group and individually.</p> <p>LO 5: Learn how to present questions to different CCAFS stakeholders and to engage in dialogue with other disciplines/sectors regarding CCAFS topics</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p> <p>LO 2: Discuss the difference between avoidance, acclimation and adaptation</p> <p>LO 3: Describe how susceptibility to, or tolerance of stress can explain plant survival and habitat preferences</p> <p>LO 5: Describe different plant stresses and the implications for global crop productivity.</p>

Supporting Modules	
PAB5108 - Climate Change, Natural Resources & Livelihoods	<p>LO 1: Describe which social or economic groups within the community are particularly vulnerable to climate change</p> <p>LO 2: Evaluate which resources are most important to the livelihoods of different social groups</p> <p>LO 4: Assess which livelihoods resources are most vulnerable to climate change</p> <p>LO 5: Investigate adaptation and mitigation strategies to maintain viable livelihoods when faced with climate change challenges</p>
PAB4104 - Plant and Agri-Biotechnologies	<p>LO 1: To provide an advanced understanding of the range and applications of plant and agricultural biotechnologies for meeting human needs.</p> <p>LO 2: To be able to describe plant and livestock improvement strategies using biotechnological approaches.</p> <p>LO 3: To consider how biotechnological approaches can be used to meet agricultural and sustainability challenges.</p>

PO5.: Competence - Context

6. a clear understanding of the relationships in the natural resources-plant-environment continuum (climate, crop, livestock, and natural risk management)

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	<p>LO 2: Outline gender linked differences in other key issues in the context of climate change (water, health, migration patterns due to environmental degradation)</p> <p>LO 3: Underline the importance of involving women as agents of change in climate change responses and incorporate gender perspectives in research agendas, information, and climate change responses.</p>
PAB5117 - Understanding Ireland's Agriculture & AgriFood Sector	<p>LO 1: Summarise the main factors which have affected the development of agriculture in Ireland</p> <p>LO 2: Explain the linkages between agri-related research across different research areas;</p>
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	<p>LO 1: Describe the major sustainability and resilience challenges facing the agriculture and agrifood sector globally</p> <p>LO 3: Identify research priorities and opportunities for improving sustainability and resilience of agriculture and agrifood systems</p> <p>LO 4: Have an improved understanding how different research skills and inter-disciplinary approaches can develop and deliver agri-sustainability innovations</p> <p>LO 5: Suggest strategies for improving the sustainability and resilience potential of agricultural and agri-food activities related to their own research area/topic</p>
PAB5116 - Understanding AgriBusiness & AgriFood Market Trends	<p>LO 1: Summarise the dynamics of national and international agrifood markets and trends</p>
PAB5101 - Climate Change, Agricultural & Global Food Security	<p>LO 1: Demonstrate knowledge of the current climate change challenges regarding sustainable global development.</p> <p>LO 2: Display a clear understanding of the implications of these challenges on sustainable production and global food security.</p> <p>LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation.</p> <p>LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.</p>

Supporting Modules	
PAB3101 - Soil Science	<p>LO 1: Critically assess the importance of links between plant and crop communities and their prevailing environment, including climate, soil type, and the availability of water and nutrients.</p> <p>LO 2: Relate the characters of plant communities to variation in nutrient status, soil and salinity.</p> <p>LO 5: Relate different soils to their possible agricultural uses, and consider the possible environmental impacts of these.</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p> <p>LO 2: Discuss the difference between avoidance, acclimation and adaptation</p> <p>LO 3: Describe how susceptibility to, or tolerance of stress can explain plant survival and habitat preferences</p> <p>LO 4: Summarise photosynthetic pathways and how they are affected by different environmental conditions, including climate change</p> <p>LO 5: Describe different plant stresses and the implications for global crop productivity.</p>
PAB5108 - Climate Change, Natural Resources & Livelihoods	<p>LO 1: Describe which social or economic groups within the community are particularly vulnerable to climate change</p> <p>LO 2: Evaluate which resources are most important to the livelihoods of different social groups</p> <p>LO 3: Identify how current climate hazards affect livelihoods and related resources of different groups</p> <p>LO 4: Assess which livelihoods resources are most vulnerable to climate change</p> <p>LO 5: Investigate adaptation and mitigation strategies to maintain viable livelihoods when faced with climate change challenges</p>
PAB4104 - Plant and Agri-Biotechnologies	<p>LO 1: To provide an advanced understanding of the range and applications of plant and agricultural biotechnologies for meeting human needs.</p> <p>LO 2: To be able to describe plant and livestock improvement strategies using biotechnological approaches.</p> <p>LO 3: To consider how biotechnological approaches can be used to meet agricultural and sustainability challenges.</p>

PO6.: Competence - Role

7. postgraduate degree level capacities for decision making to meet climate change challenges in Europe and in third nations.
8. facility with different communication techniques to implement research outcomes needed for agricultural transitions.

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	<p>LO 5: Generate ideas for gender sensitive responses to the effects of climate change – in technology developments and financing mechanisms (gender analysis of budget lines and financial instruments for climate change, gender-sensitive investments in programmes for adaptation, mitigation, technology transfer and capacity building).</p> <p>LO 6: Outline how governments can incorporate gender perspectives into their interventions on climate change</p>
PAB5117 - Understanding Ireland's Agriculture & AgriFood Sector	<p>LO 4: Write a report placing their own research topic in the broader context of Irish agriculture and agrifood systems;</p> <p>LO 5: Demonstrate an improved ability to make oral and written communications of their research topic in context of Irish agriculture and agrifood systems;</p>
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	<p>LO 5: Suggest strategies for improving the sustainability and resilience potential of agricultural and agri-food activities related to their own research area/topic</p> <p>LO 6: Communicate in an Elevator Pitch format how their research topic can be relevant to agriculture and agrifood sustainability</p>
PAB5116 - Understanding AgriBusiness & AgriFood Market Trends	<p>LO 4: Develop and present a business plan for exploitation of an international market</p> <p>LO 5: Appreciate the contribution of different disciplines and research approaches for developing and implementing a business plan for an agrifood product or service</p>
PAB5101 - Climate Change, Agricultural & Global Food Security	<p>LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation.</p> <p>LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.</p>

Supporting Modules	
PAB5111 - PAB5111 CCAFS Perspectives	<p>LO 1: Consider how different disciplines and sectors have differing perspectives regarding climate change, agriculture and food security</p> <p>LO 2: Appreciate how presentations and case studies on CCAFS topics can be differently framed by different sectors and disciplines</p> <p>LO 3: Critically review case studies and perspectives in the context of CCAFS challenges</p> <p>LO 4: Present and discuss opinions in an open forum as a group and individually.</p> <p>LO 5: Learn how to present questions to different CCAFS stakeholders and to engage in dialogue with other disciplines/sectors regarding CCAFS topics</p>
PAB5110 - CCAFS Science Communication	<p>LO 1: Critically evaluate which sources of information regarding climate change, agriculture and food security are most reliable and trustworthy.</p> <p>LO 2: Discuss a technical scientific topic for various audiences through news print, broadcast and social media</p> <p>LO 3: Identify key approaches and constraints for environmental and risk communication regarding CCAFS</p> <p>LO 4: Assess the efficacy of different science communication approaches in context of CCAFS</p> <p>LO 5: Consider different approaches for the analysis and implementation of effective science communication</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p>
PAB5108 - Climate Change, Natural Resources & Livelihoods	<p>LO 1: Describe which social or economic groups within the community are particularly vulnerable to climate change</p> <p>LO 2: Evaluate which resources are most important to the livelihoods of different social groups</p> <p>LO 3: Identify how current climate hazards affect livelihoods and related resources of different groups</p> <p>LO 4: Assess which livelihoods resources are most vulnerable to climate change</p> <p>LO 5: Investigate adaptation and mitigation strategies to maintain viable livelihoods when faced with climate change challenges</p>

PO7.: Competence - Learning to Learn

9. the capacity to integrate new information on development, agriculture and climate change issues into their understanding.

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	LO 5: Generate ideas for gender sensitive responses to the effects of climate change – in technology developments and financing mechanisms (gender analysis of budget lines and financial instruments for climate change, gender-sensitive investments in programmes for adaptation, mitigation, technology transfer and capacity building).
PAB5117 - Understanding Ireland's Agriculture & AgriFood Sector	LO 3: Identify priority and opportunity areas in which research can assist the development of Irish agriculture and agrifood systems; LO 4: Write a report placing their own research topic in the broader context of Irish agriculture and agrifood systems; LO 5: Demonstrate an improved ability to make oral and written communications of their research topic in context of Irish agriculture and agrifood systems;
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	LO 5: Suggest strategies for improving the sustainability and resilience potential of agricultural and agri-food activities related to their own research area/topic
PAB5101 - Climate Change, Agricultural & Global Food Security	LO 1: Demonstrate knowledge of the current climate change challenges regarding sustainable global development. LO 2: Display a clear understanding of the implications of these challenges on sustainable production and global food security. LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation. LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.
PAB3101 - Soil Science	LO 5: Relate different soils to their possible agricultural uses, and consider the possible environmental impacts of these.

Supporting Modules	
PAB5111 - PAB5111 CCAFS Perspectives	<p>LO 1: Consider how different disciplines and sectors have differing perspectives regarding climate change, agriculture and food security</p> <p>LO 2: Appreciate how presentations and case studies on CCAFS topics can be differently framed by different sectors and disciplines</p> <p>LO 3: Critically review case studies and perspectives in the context of CCAFS challenges</p> <p>LO 4: Present and discuss opinions in an open forum as a group and individually.</p> <p>LO 5: Learn how to present questions to different CCAFS stakeholders and to engage in dialogue with other disciplines/sectors regarding CCAFS topics</p>
PAB5110 - CCAFS Science Communication	<p>LO 1: Critically evaluate which sources of information regarding climate change, agriculture and food security are most reliable and trustworthy.</p> <p>LO 2: Discuss a technical scientific topic for various audiences through news print, broadcast and social media</p> <p>LO 3: Identify key approaches and constraints for environmental and risk communication regarding CCAFS</p> <p>LO 4: Assess the efficacy of different science communication approaches in context of CCAFS</p> <p>LO 5: Consider different approaches for the analysis and implementation of effective science communication</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p>
PAB4104 - Plant and Agri-Biotechnologies	<p>LO 3: To consider how biotechnological approaches can be used to meet agricultural and sustainability challenges.</p>

PO8.: Competence - Insight

10. demonstrate an in-depth understanding of climate change and its linkage to the global environmental changes
11. the capability to identify critical aspects of professional situations within natural resource management in relation to agricultural activities

Supporting Modules	
PAB5104 - Gender, Agriculture & Climate Change	<p>LO 3: Underline the importance of involving women as agents of change in climate change responses and incorporate gender perspectives in research agendas, information, and climate change responses.</p> <p>LO 4: Appreciate the gender-relevance of frameworks for policy analysis, databases, methods and ex ante impact assessment for planning responses to climate change in agriculture.</p>
PAB5115 - AgriFood Sustainability & Agri-Resilience Challenges	<p>LO 3: Identify research priorities and opportunities for improving sustainability and resilience of agriculture and agrifood systems</p> <p>LO 5: Suggest strategies for improving the sustainability and resilience potential of agricultural and agri-food activities related to their own research area/topic</p>
PAB5101 - Climate Change, Agricultural & Global Food Security	<p>LO 1: Demonstrate knowledge of the current climate change challenges regarding sustainable global development.</p> <p>LO 2: Display a clear understanding of the implications of these challenges on sustainable production and global food security.</p> <p>LO 3: Identify and discuss the issues and evidence surrounding these challenges and related approaches to mitigation.</p> <p>LO 4: Evaluate options for climate change mitigation and adaptation strategies in the context of sustainable production and food security.</p>
PAB3101 - Soil Science	LO 5: Relate different soils to their possible agricultural uses, and consider the possible environmental impacts of these.

Supporting Modules	
PAB5110 - CCAFS Science Communication	<p>LO 1: Critically evaluate which sources of information regarding climate change, agriculture and food security are most reliable and trustworthy.</p> <p>LO 2: Discuss a technical scientific topic for various audiences through news print, broadcast and social media</p> <p>LO 3: Identify key approaches and constraints for environmental and risk communication regarding CCAFS</p> <p>LO 4: Assess the efficacy of different science communication approaches in context of CCAFS</p> <p>LO 5: Consider different approaches for the analysis and implementation of effective science communication</p>
PAB5109 - PAB5109 AgriBiological Responses to Climate Change	<p>LO 1: Appreciate how climate change can impact on environmental adaptation of biological organisms of relevance to agriculture and agri-food systems</p> <p>LO 2: Discuss the difference between avoidance, acclimation and adaptation</p> <p>LO 3: Describe how susceptibility to, or tolerance of stress can explain plant survival and habitat preferences</p> <p>LO 4: Summarise photosynthetic pathways and how they are affected by different environmental conditions, including climate change</p> <p>LO 5: Describe different plant stresses and the implications for global crop productivity.</p>
PAB5108 - Climate Change, Natural Resources & Livelihoods	<p>LO 1: Describe which social or economic groups within the community are particularly vulnerable to climate change</p> <p>LO 2: Evaluate which resources are most important to the livelihoods of different social groups</p> <p>LO 3: Identify how current climate hazards affect livelihoods and related resources of different groups</p> <p>LO 4: Assess which livelihoods resources are most vulnerable to climate change</p> <p>LO 5: Investigate adaptation and mitigation strategies to maintain viable livelihoods when faced with climate change challenges</p>

Supporting Modules	
PAB4104 - Plant and Agri-Biotechnologies	<p>LO 1: To provide an advanced understanding of the range and applications of plant and agricultural biotechnologies for meeting human needs.</p> <hr/> <p>LO 2: To be able to describe plant and livestock improvement strategies using biotechnological approaches.</p> <hr/> <p>LO 3: To consider how biotechnological approaches can be used to meet agricultural and sustainability challenges.</p>

Who Can Access

Staff Member	Staff Number
CORA COSTELLO	0023560S
PETER MC KEOWN	0111364S
CLAIRE MITCHELL	0023293S