

**UNIVERSITI TEKNOLOGI MARA****AGA562: SUSTAINABLE AGRICULTURE**

Course Name (English)	SUSTAINABLE AGRICULTURE APPROVED
Course Code	AGA562
MQF Credit	3
Course Description	This course will interactively engage students cognitively and scientifically in issues related to sustainable agriculture and food systems. Students will define concepts, perform investigations via case studies, self reflection, and independent projects and verbally discuss the results and relationships with peers and facilitators. Lecture sessions employ a mixture of lectures and active learning (self and peer discussions). The outcomes shall be assessed through a variety of tools which include the traditional paper examination, informal interviews and classroom engagement.
Transferable Skills	Knowledge, Communication, Life-long learning
Teaching Methodologies	Lectures, Case Study
CLO	<p>CLO1 Identify and discuss the major issues related to sustainable agriculture and food systems.</p> <p>CLO2 Observe and understand how agriculture interacts with the environmental, economic, and social issues.</p> <p>CLO3 Identify and apply problem-solving skills for seeking alternatives in environmental and production issues.</p> <p>CLO4 Verbally express and report to peers and to the facilitator the personal values related to sustainable agriculture systems</p>
Pre-Requisite Courses	No course recommendations
Topics	
1. 1.0 Principle of Sustainable Agriculture 1.1) 1.1 Definitions of sustainable agriculture 1.2) 1.2 World classification/distribution of agricultural systems 1.3) 1.3 Components of sustainable agriculture	
2. 2.0 Evaluating Sustainability of Agricultural and Food systems 2.1) 2.1 List of possible environmental indicators 2.2) 2.1 Ecological principles applied to agricultural and food systems 2.3) 2.1 Working towards and measuring sustainability	
3. 3.0 Environmental Issues of Sustainability 3.1) 3.1 Effects of agricultural activities on components of environment 3.2) 3.1.1 Soil 3.3) 3.1.2 Water 3.4) 3.1.3 Air 3.5) 3.2 Environmental management strategies 3.6) 3.2.1 Fertilizer and pesticide use 3.7) 3.2.2 Water utilization 3.8) 3.3 Environmental ethics	
4. 4.0 Crop Production Practices 4.1) Cropping systems 4.2) 4.2 Organic farming 4.3) 4.3 Integrated crop management 4.4) 4.4 Good Agricultural Practices (GAP) 4.5) 4.5 RSPO verification systems and standards	

5. 5.0 Animal Production Practices 5.1) 5.1 Traditional livestock production system 5.2) 5.2 Animal health 5.3) 5.3 Sustainable animal agriculture
6. 6.0 Biodynamic Agriculture / Biodiversity 6.1) 6.1 Biodiversity in crop and forest systems 6.2) 6.2 Role of biodiversity in agriculture and forestry 6.3) 6.3 Biodiversity - conservation and improvement 6.4) 6.4 Negative impacts on biodiversity
7. 7.0 Economic Viability 7.1) 7.1 Economics of sustainability 7.2) 7.2 Economic indicators and impact of sustainable farming 7.3) 7.3 Costs and benefits of various crop production systems 7.4) 7.4 Production of nutrients and costs using various technologies
8. 8.0 The Social and Political Context 8.1) 8.1 Social status / desire for higher standard of living 8.2) 8.2 Social and cultural feasibility 8.3) 8.3 Political (cultural) ecology 8.4) 8.4 Political economy

Assessment Breakdown		%
Continuous Assessment		60.00%
Final Assessment		40.00%

Details of Continuous Assessment				
	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment	20%	CLO2
	Presentation	Presentation - Conduct a Class Forum	20%	CLO4
	Test	Online Test	20%	CLO1

Reading List	Recommended Text	<ul style="list-style-type: none"> Gliessman, Stephen R. 2000, <i>Agroecology: Ecological Processes in Sustainable Agriculture.</i>, Lewis Publishers Gliessman, Stephen R. 2007, <i>Agroecology: Ecology of Sustainable Food Systems</i>, 2nd ed Ed., CSC Press 4. Kates, Robert W., Thomas M. Parris, and Anthony A. Leiserowitz. 2005, <i>Environment: Science and Policy for Sustainable Development</i>
	Reference Book Resources	<ul style="list-style-type: none"> Edwards, Andres. 2005, <i>The Sustainability Revolution: Portrait of a Paradigm Shift.</i>, New Society Publishers

Article/Paper List	This Course does not have any article/paper resources
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Other References	<ul style="list-style-type: none"> Website Food and Agriculture Organization <i>Sustainability Assessment of Food and Agriculture systems (SAFA)</i> http://www.fao.org/nr/sustainability/sustainability-assessments-safa/en/
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